

Draft
Technical Memorandum
Sediment Predesign Investigation
for
Old Fire Fighting Training Area
Naval Station Newport
Newport, Rhode Island



Engineering Field Activity Northeast
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0833

February 2002

**DRAFT
TECHNICAL MEMORANDUM
SEDIMENT PREDESIGN INVESTIGATION
FOR
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND
COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION - NAVY (CLEAN) CONTRACT**

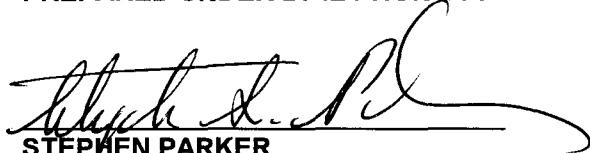
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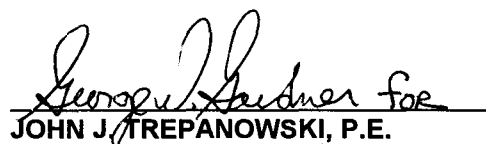
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TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
EXECUTIVE SUMMARY	E-1
1.0 INTRODUCTION.....	1-1
2.0 BACKGROUND INFORMATION.....	2-1
2.1 SITE HISTORY	2-1
2.2 PREVIOUS INVESTIGATIONS	2-2
2.2.1 Marine Ecological Risk Assessment	2-2
2.2.2 Human Health Risk Assessment	2-4
2.2.3 Habitat Survey, 2001	2-5
2.3 SUMMARY OF THE PRELIMINARY REMEDIATION GOALS FOR OFFTA MARINE SEDIMENT	2-5
3.0 FIELD SAMPLING ACTIVITIES	3-1
3.1 MOBILIZATION/DEMOBILIZATION	3-1
3.2 SAMPLE COLLECTION.....	3-1
3.2.1 Samples Collected from Grid Points	3-2
3.2.2 Supplemental Samples	3-4
3.2.3 Shoreline/Nearshore Samples	3-4
3.3 DECONTAMINATION PROCEDURES.....	3-4
3.4 LOCATION SURVEY AND PHOTOGRAPHY	3-5
4.0 FINDINGS OF THE INVESTIGATION.....	4-1
4.1 CHEMICAL DATA	4-1
4.1.1 Exceedances of PRGs for Residential/Recreational Exposure to Sediment	4-1
4.1.2 Exceedances of PRGs for Lifetime Recreational Shellfish (Lobster) Ingestion	4-2
4.1.3 Exceedances of PRGs for Ecological Exposure	4-2
4.2 DATA DISCUSSION AND POSSIBLE ACTION AREAS	4-3
4.3 WATER DEPTH INFORMATION.....	4-4
5.0 SUMMARY AND CONCLUSIONS	5-1

REFERENCES

TABLES

NUMBER

2-1	Summary of Preliminary Remediation Goals (PRGs) for Marine Sediment
4-1	Contaminants Exceeding PRGs, Lifetime Residential/Recreational Exposure to Sediment
4-2	Contaminants Exceeding PRGs, Lifetime Recreational Ingestion of Shellfish (Lobster)
4-3	Contaminants Exceeding PRGs, Ecological Exposures

TABLE OF CONTENTS (Continued)

FIGURES

NUMBER

E-1	Possible Action Areas, Marine Sediment
2-1	Site Locus
2-2	Newport Sites and Study Areas
2-3	Site and Reference Collection Stations
2-4	Subtidal Habitat Survey Results
2-5	Summary of Previous Study, Sediments Exceeding PRGs
3-1	Grid and Supplemental Sediment Sample Stations
3-2	Core Sampler Components
4-1	Locations where Sediments Exceed PRGs
4-2	Possible Action Areas, Marine Sediment
4-3	Water Depths and Interpreted Topography of Marine Sediment

APPENDICES

A	Results from Analysis of Samples Collected, November 2001
B	Data and Processing Information, GPS Survey of Sample Stations
C	Photographs of Sample Stations
D	Sample Log Sheets, Sediment Samples Collected November 2001

EXECUTIVE SUMMARY

In November 2001, Tetra Tech NUS, Inc. conducted sediment sampling near the Old Firefighting Training Area (OFFTA) in order to identify sediment contaminants exceeding preliminary remediation goals (PRGs) within sensitive habitats. Data from this investigation has been used to make a preliminary determination of the extent of sediments that contain contaminants in excess of PRGs established for polycyclic aromatic hydrocarbons (PAHs) and metals. PRGs were finalized through review with the regulatory parties in January 2002, and will be published in the Draft Revision 1 Feasibility Study Report (FS), anticipated for March 2002.

Eighty sediment samples (plus duplicate and quality control samples) were collected from the study area, analyzed for PAHs and metals, and the resulting analytical data were added to the existing database of chemical data for sediments in Coasters Harbor. All the available data were sorted into exposure areas defined by the PRGs and compared to those PRGs. Areas of sediment where contaminants exceed PRGs are depicted on Figure E-1.

The highest concentrations of PAHs were found in two separate locations: the nearshore station OFF-5, and the offshore Station SD-410. Both are in close vicinity to outfalls that discharge storm runoff from the north side of Coasters Harbor Island.

All the shoreline sediments (those sediments between mean high tide and mean low tide, also known as the "beach" area) that were sampled exceed the PRGs (PAHs and arsenic) calculated to protect the residential/recreational receptor. The PRGs for this receptor are based on incidental ingestion and dermal contact with sediments 240 days per year for 30 years.

Some nearshore sediments (those sediments at the mean low tide line) appear to exceed PRGs for ecological exposures (PAHs). These sediments are centered around two storm drain outfalls and are contiguous with the shoreline area described above.

One small area of offshore sediment (those sediments below the mean low tide line) exceed the PRGs for ecological exposures and the PRGs for lifetime recreational ingestion of shellfish (lobster). The surface sediments at this location exhibited the highest concentrations of PAHs detected at the study area to date. This location is close to westernmost of the two outfalls identified above, and is also within the southern edge of the eelgrass bed identified by Pare Engineering and TtNUS in August 2001.

Because all the sediments in the shoreline area exceed the PRGs for human exposure, the area between the high tide line down to the low tide line are recommended to be considered for development of

remedial action alternatives in the Feasibility Study. A portion of the sediments associated with the nearshore stations OFF-3, -5, and -6, which are contiguous to the shoreline area are also recommended for such consideration, as shown on Figure E-1.

The extent of the apparent hot spot identified in the eelgrass bed at the western portion of the study area should be determined through additional sampling under future predesign investigations.

1.0 INTRODUCTION

This technical memorandum has been prepared to describe the sediment pre-design investigation sampling and analysis program conducted for Contract Task Order (CTO) 833, under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62467-94-D-0888. Pursuant to the CTO, Tetra Tech NUS, Inc. (TtNUS) performed additional investigations within the marine sediments proximal to the Old Firefighting Training Area (OFFTA; "the site"), which is part of the Naval Station Newport (NSN), in Newport, Rhode Island.

This investigation was implemented to, in part, identify sediment contaminants exceeding preliminary remediation goals (PRGs) within sensitive habitats. Data from this investigation will also be used to make a preliminary determination of the volume of sediments that contain contaminants in excess of PRGs established in the Draft Revision 1 Feasibility Study (FS) Report (TtNUS, anticipated March 2002).

The FS prepared by TtNUS identified possible remedial action areas offshore of the OFFTA site. This area had previously been identified as an area where eelgrass was present. Because eelgrass is an ecologically important marine plant and represents a sensitive underwater habitat, a survey was performed by divers to determine the extent of its presence in the summer of 2001. The survey noted overall good health of the environment in this area, based on confirmed presence and abundance of eelgrass and certain molluscs. This sediment predesign investigation was then undertaken to better understand the extent of sediment contaminants at concentrations exceeding PRGs in an area showing such evidence of good ecological health.

Based on the data presented in this technical memorandum, the extent of sediments exceeding PRGs will be incorporated into the revised FS Report, and considered for development of remedial action alternatives including no action, monitoring, removal, and possibly others. The Proposed Remedial Action Plan (PRAP) will outline a plan for Remedial Action (RA) and any necessary processes needed for protection of the sensitive habitats present.

This draft technical memorandum includes four sections: this introduction; the site background, including a brief history of the site, summary of the previous investigations and a summary of the PRG development for the marine sediments; the field sampling activities, which describes the sample collection, analysis, and location survey efforts conducted; and the findings of the investigation. Appendix A presents the analytical results from samples collected. Appendix B presents the data from the GPS location survey. Appendix C presents photographs taken of the sample stations. Appendix D presents field notes taken during sample collection activities.

2.0 BACKGROUND INFORMATION

This section presents background information for the OFFTA site, including a site description, site history, a brief summary of previous investigations and a summary of the PRG development process for the marine sediments at the site.

The NSN is located approximately 60 miles southwest of Boston, Massachusetts, and 25 miles south of Providence, Rhode Island. It occupies approximately 1,063 acres, with portions of the facility located in the City of Newport and Towns of Middletown and Portsmouth, Rhode Island. The facility layout follows the western shoreline of Aquidneck Island for nearly 6 miles, facing the east passage of Narragansett Bay. A general location map of the NSN is provided as Figure 2-1.

The OFFTA site is located at the northern end of Coasters Harbor Island and is shown in relation to other NSN sites in Figure 2-2. The site occupies approximately 5.5 acres and is bordered by Taylor Drive to the south and is surrounded by Coasters Harbor (part of Narragansett Bay) to the east, north, and west (Figures 2-3 and 2-4). The site currently contains an unused picnic area, playground, and baseball field. A one-story concrete block building (Building 144) is located along the southern side of the site. The building and recreational facilities at the site are not currently in use. Access to the site is restricted by a chain link fence along its eastern, southern, and western sides.

Unique topographic features at the site include three soil mounds: one that is approximately 20 feet high (30 feet above mean low water) located in the center of the site, another that is approximately 6 feet high (16 feet above mean low water) located on the western side of the site, and a third smaller mound at the far west end of the site. These mounds are believed to be made up of buried structures and debris. The rest of the OFFTA site is generally flat, with surface elevations ranging from 8 to 12 feet above mean low water. With the exception of the baseball infields, the site is entirely vegetated with grass.

2.1 SITE HISTORY

This section provides an abbreviated history of the site and the environmental conditions. Additional related information can be found in the Feasibility Study Report (TtNUS 2001, and revisions).

The NSN facility has been in use by the Navy since the era of the Civil War. During World Wars I and II, military activities at the facility increased significantly and the base provided housing for many servicemen. In subsequent peacetime years, use of on-site facilities was slowly phased out until Newport became the headquarters of the Commander Cruiser-Destroyer Force Atlantic in 1962. In April 1973, the Shore Establishment Realignment Program (SER) resulted in the reorganization of naval forces, and

activity at the base again declined. This reorganization resulted in the Navy excessing some 1,629 acres of its 2,420 acres.

The OFFTA site was home to a Navy fire fighting training facility from World War II until 1972. During the training operations, fuel oils were ignited in various structures at the site that simulated shipboard compartments, and then extinguished by sailors. It was reported that the two "Carrier Compartment" buildings were injected with a water/oil mixture which was subsequently set on fire for fire fighting practice. Underground piping reportedly carried the water/oil mixture to the buildings and from the buildings to an oil-water separator.

The fire fighting training facility was closed in 1972. Upon closure, the training structures were reportedly demolished and buried in mounds on the site, and then the entire area was covered with topsoil. The site was then converted to a recreational area with a playground, a baseball field, and a picnic area with an open pavilion and barbecue grills. The field was dedicated on July 4, 1976, and used as a recreational area until its closure in October 1998 due to potential environmental concerns.

2.2 PREVIOUS INVESTIGATIONS

A Remedial Investigation Report (RI) was assembled from a number of investigative efforts conducted for the OFFTA site and marine sediments (TtNUS, July 2001). The first study dedicated to the chemical conditions in the marine sediment proximal to the OFFTA site was an Ecological Risk Assessment (ERA) (SAIC, 2000). The ERA was performed to assess ecological risks to the offshore environments of Coasters Harbor and Narragansett Bay from contaminants associated with OFFTA and included exposure and effects assessments, a characterization of risk, risk synthesis, and uncertainty analysis. The completion of the ERA led into subsequent human health risk assessment and the habitat survey, discussed in the sections which follow.

2.2.1 Marine Ecological Risk Assessment

The discussion presented in this section is based on the findings of the marine Ecological Risk Assessment (ERA) for the OFFTA. Refer to the Ecological Risk Assessment Report (SAIC, 2000) for complete details.

Coasters Harbor is a shallow cove connected to the East Passage of Narragansett Bay. Figure 2-3 depicts Coasters Harbor with the OFFTA site and the sampling stations evaluated in the ecological risk assessment. The harbor is open at each end, north and south of Coasters Harbor Island. A wide mouth faces west at the north end of the island, and a narrow opening at the head faces south at the south end

of the island. The maximum depth of the harbor at the mouth is approximately 20 feet at mean low water. At the head, the depth of the harbor is approximately 3 feet at mean low water. A tidal difference of approximately 3.5 feet has been recorded for Coasters Harbor. Circulation patterns and energies within the harbor are dominated by the tides and wind-driven flow. Hydrographic studies performed in 1996 indicate that water enters and exits at both the west and south openings and does not show a consistent directional flow pattern (Kincaid, Ellis, and DeLeo, 1996).

The estuarine system in the vicinity of OFFTA primarily includes subtidal environments, sand- or silt-substrate, with some eelgrass. The dominant taxa in the silty, subtidal, infaunal communities (less than 60 percent sand content) of Coasters Harbor included the bivalve *Nucula proxima*, *oligochaetes* species (aquatic worms), and the arthropod *Microdeutopsis*. The sandy, intertidal, infaunal communities (greater than 70 percent sand content) were found north of Coasters Harbor. Organisms and species that numerically dominated the benthic community at sandy intertidal stations included the snail *Littorina littorea*, the blue mussel *Mytilus edulis*, and, to a lesser extent, *oligochaetes* (SAIC, 2000).

The infaunal benthic, epibenthic, and pelagic communities in Coasters Harbor represent important marine habitats. Species within some of these areas include the blue mussel, the lobster (*Homarus americanus*), hard clams (*Mercenaria mercenaria*/*Pitar morrhuana*), and cunner (*Tautoglabrus adspersus*). Other species found during field investigations of the marine environment include oysters and bay scallops. Both of these bivalves are very important, commercially and ecologically. Their presence in this area shows evidence of overall good health of the subtidal areas. The benthic community is ecologically important and serves as a major food source for birds and fish, as well as for invertebrates.

Risks were identified by stations based on summaries of each weight of evidence, focusing on the exposure (contaminants present) correlated to effects (reproduction and growth inhibitions, etc). Stations were rated from these summaries to exhibit properties where there is high, intermediate, and low probability for adverse risk to receptors present at those stations.

The assessment found a high probability for adverse risk at one station (Station 5), close to the outfall at the central shoreline of the site, likely from PAHs and metals present at this area. Intermediate probability for risk was estimated for a number of stations at the nearshore area and in the harbor sediment, including one reference station south of Coasters Harbor, but because a clear exposure-response relationship was not found, these risks may be considered acceptable from an ecological perspective. Low probability for adverse risk was estimated for the remainder of the stations, including one reference station and the nearshore stations more exposed to rough water conditions. The observed risks at these stations are considered acceptable from an ecological perspective. A baseline condition associated with

relatively pristine conditions was not observed at any of the site or reference stations evaluated in the risk assessment.

2.2.2 Human Health Risk Assessment

As a part of the remedial investigation, the risks to human exposure to site contaminants in the shoreline sediment (the area between low tide and high tide) were evaluated as well as the risk to humans ingesting shellfish taken from the offshore areas of the site. This section summarizes the findings of these portions of the risk assessment.

Risks were calculated for human exposure to sediments for child, adolescent, and adult for resident, visitor and recreational scenarios. Each combination of receptor and scenario was evaluated based on EPA, Rhode Island Department of Environmental Management (RIDEM) and Navy guidance documents and scientific literature. Those scenarios that were calculated to predict actionable risk were lifetime residential/recreational exposure to sediment, and lifetime recreational ingestion of shellfish (lobster).

The estimated reasonable maximum incremental cancer risk (ICR) for a lifetime resident exposed to the sediment was $2.2\text{E-}5$, which exceeded the $1\text{E-}5$ ICR benchmark used by RIDEM. This risk was calculated based on ingestion and dermal exposure to the sediment. Ingestion is presumed to occur at a rate of 100 grams (g) sediment per day (240 days per year for six years) as a child, combined with 50 g sediment per day (240 days per year for 24 years) as an adult. Dermal exposure is presumed to occur based on sediment exposure to hands and feet at the same frequencies and durations as those used for ingestion. It should be noted that lifetime recreational exposure parameters that were used for exposure to sediment were the same as those predicted for residential exposure to surface soils.

The estimated reasonable maximum ICR for lifetime recreational exposure to lobster was $1.1\text{E-}4$, which was at the upper end of EPA's target risk range of $1\text{E-}4$ to $1\text{E-}6$, and exceeded the $1\text{E-}5$ ICR benchmark used by RIDEM. Lifetime recreational exposure to shellfish (lobster) is presumed to occur at a rate of 2.9 meals per year both as a child eating meals of 1.5 ounces of meat (six years) combined with an adult eating approximately meals of 4 ounces of meat (24 years). Subsistence fishing was also used to develop an estimated risk, based on 48 meals per year. However, it was later determined by the Navy that this scenario could not be supported by the limited fishery at the site.

Note that RIDEM has designated the area of Narragansett Bay along the NAVSTA Newport shoreline, including Coasters Harbor, as a shellfish closure area due to known or potential sewage discharges in the area. However, the effectiveness of the ban for preventing shellfishing is uncertain, and the ban applies only to a few species of shellfish (bivalves only); it does not apply to lobster or finfish.

2.2.3 Habitat Survey, 2001

In July 2001, an underwater survey was conducted by TtNUS and Pare Engineering of Lincoln, Rhode Island. This survey was conducted in order to better define sensitive habitats and species that were identified during the ERA but were not quantitatively evaluated. Specifically, the survey was conducted to identify presence and extent of eelgrass in the subtidal areas, and to identify presence of specific epibenthic bivalves (bay scallops and oysters).

The survey was conducted by divers using self-contained underwater breathing apparatus and swimming a series of transect lines across the study area, and those divers identifying target species and providing a gross evaluation of their health. Transect lines were established 25 feet apart, and visibility was noted to be 20 feet or better so that visual sight of the bottom was maintained for the whole study area. Eelgrass was visually identified and edges of the beds were surveyed from the water surface using a differential GPS with an accuracy of 15 feet. Eelgrass beds larger than approximately 75 ft² were identified as healthy stands; smaller stands were not targeted for identification.

This survey revealed the presence of a large eel grass bed along the northwest side of Coasters Harbor Island. The offshore limits of the bed extended outside the study area to the west as well as to the east. The study noted that the eelgrass bed had a scale score of 4 to 5, which corresponds to between 70% and 100% coverage. Eelgrass was observed in both very dense (>70%) and sparse patches, however the sparse patches were found to be much smaller than 10 feet in diameter.

Oysters were also found in abundance during the study. This species was identified as dominating the eastern portion of the study area. Species diversity, including both plant and animal, seemed to increase from east to west. Other identified species included quahogs, mussels (in shallow water) and numerous types of vegetation and algae. Some scallops were observed during the study, and it is speculated that more scallops are also present within the eelgrass bed, however it was difficult to investigate their presence due to the density of the beds (Pare, 2001A).

Figure 2-4 depicts the findings of the habitat survey. This figure shows extent of eelgrass mapped as described above, and densities of oysters measured.

2.3 **SUMMARY OF THE PRELIMINARY REMEDIATION GOALS FOR OFFTA MARINE SEDIMENT**

The Navy is mandated to develop risk-based PRGs to direct remedial actions at sites under the Installation Restoration Program for which excess risk is identified. PRGs were calculated to support the FS for OFFTA by identification of sediments that may cause an increased risk to receptors present.

At the OFFTA site, actionable risk from marine sediment was estimated and calculated in the Remedial Investigation (RI) report and supporting documents under three receptor scenarios. PRGs were developed for each receptor scenario identified in those various risk assessments.

- Human lifetime recreational/residential exposure to shoreline sediment
- Human ingestion of shellfish (lobster) collected from the nearshore and offshore sediment areas
- Ecological risk associated with the nearshore and offshore sediments

To establish cleanup goals for these three receptor scenarios, PRGs were developed for each scenario separately and applied to the exposure areas described below. Where PRGs overlap, the more conservative should apply. For the purposes of this and related documents, clarifications on the exposure areas are as follows:

Marine Sediment - All intertidal and subtidal substrate including sand, rock, cobble, silt and other substances that are covered at least occasionally by the waters of Coasters Harbor and Narragansett Bay. This designation is inclusive of the three subareas described below identified as shoreline, nearshore, and offshore sediment.

Shoreline Sediment – Area in the intertidal zone (between mean low water and mean high water). This area is casually referred to as the beach, or beach face. Original samples were collected and used for human health risk (shoreline recreation scenario) only. Exposures in this area are limited to human recreational/resident exposure to sediments.

Nearshore Sediment – Area at the low-tide line (represented by Sampling Stations OFF-1 through OFF-7 as shown in Figure 2-4). Data available includes bulk sediment chemistry, porewater chemistry and some shellfish chemistry. Samples were collected for ecological risk, and shellfish data was also used for shellfish ingestion scenarios in the human health risk assessment. Exposures in this area include those to ecological receptors and human receptors ingesting fish and shellfish harvested from the area. Because this area is covered with water at depths greater than one foot for the majority (two thirds, based on a 3 foot tide change) of the 24 hour day, certain shellfish thrive in this area. However recreational/residential exposures to sediments at the rates used for development of risk and development of PRGs are not applicable.

Offshore Sediment – Area seaward of mean low water. Data available includes bulk sediment fish and shellfish chemistry, benthic diversity, elutriate, and porewater toxicity. Original samples were collected for ecological risk, and shellfish data was also used for fish and shellfish ingestion scenarios in the human health risk assessment. Exposures in this area include those to ecological receptors and human

receptors ingesting fish and shellfish harvested from the area. Because this area is always covered with water, recreational/resident exposures to sediments at the rates used for development of risk and development of PRGs are not applicable.

PRGs were back-calculated using the target risk levels and exposure parameters provided in the ERA and the human health risk assessment. Details on the PRG development process are provided in Appendix B of the FS report (TtNUS April 2001, and revisions). Table 2-1 presents the final PRGs calculated.

- PRGs for Lifetime Resident/Recreational Exposure to Shoreline Sediment - Shoreline sediment PRGs for this scenario were calculated for arsenic, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene. These PRGs are developed for site-specific contaminants targeted to the 1E-6 risk level to ensure total cancer risks are less than RIDEM criteria of 1E-5. The PRGs are based on the parameters in the risk assessment, described in Section 2.2.2 of this technical memorandum. The risk-based PRG for arsenic defaults to the background arsenic level (6.2 mg/kg) to assure that the final PRG is not below background (TtNUS, July 2001).
- PRGs for Shellfish Ingestion - Nearshore and offshore sediment PRGs based on lifetime recreational ingestion of shellfish (lobster) were calculated for arsenic, cadmium, chromium, mercury, PCBs, and five PAH compounds. These PRGs are developed for site specific contaminants targeted to the 1E-6 risk level to ensure total cancer risks are less than RIDEM criteria of 1E-5. The shellfish PRGs were calculated as described in Section 2.2.2 of this technical memorandum based on ingestion of lobster taken recreationally from the site over a lifetime period.
- PRGs for Ecological Exposures - Marine sediment PRGs based on ecological risk were calculated for four PAH compounds. Ecological PRGs are based on complex algorithms that correlate concentrations of contaminants in sediments to contaminant concentrations in porewater, and then correlate those concentrations to measured toxicity.

PRG Exceedances Based on Previous Data

PRGs were calculated as described above and compared with the existing data available for the marine sediment. Only one contaminant that was selected as a contaminant of concern (COC), dibenzo(a,h)anthracene, exceeded the calculated PRG for all three risk endpoints. Other PAHs were selected as COCs and calculated PRGs were exceeded, but not for all three risk endpoints. Only one

inorganic contaminant was found to exceed PRGs, that for arsenic, and this was exceeded under the ingestion of lobster and recreational/residential exposure to sediment. Figure 2-5 depicts exceedances of the PRGs based on this data.

Spatially, the PRGs calculated for PAHs were mostly exceeded at the nearshore (low tide line) and shoreline (beach) stations. This observation is supported by the conceptual site model which indicates that contaminants from oils and combustion during the firetraining exercises would have migrated downgradient toward the shoreline. The locations where arsenic exceeded the calculated PRG for lobster ingestion did not correlate to any of the locations where PAHs exceeded PRGs, nor did the locations of these exceedances show a distribution pattern.

PAH concentrations were highest in marine sediment at the nearshore station OFF-5. Similarly, the highest concentrations of PAHs in the shoreline sediment were detected at SSD-334, immediately upgradient from OFF-5. The station OFF-5 is also the location where the highest ecological risk was noted in the Ecological Risk Assessment Report. PAHs also exceed the PRGs at the nearshore station OFF-3 near the eastern storm drain outfall, but no shoreline stations were located nearby.

The PRG development effort concluded that the PAHs exceeding the PRGs seem to be a good indicator of site-related contamination, and would be better suited to direct a remedial or corrective action. Contrarily, the PRG for arsenic is not correlative with the PAHs and does not support the site model, and therefore is not recommended for use in selection or direction of remedial actions.

Figure 2-5 presents the stations where PRGs were exceeded based on data available prior to November 2001. Based on these exceedances, additional data was determined to be necessary, particularly in the areas where eelgrass was identified during the habitat survey efforts. Such additional data would assist the evaluation of the possible remedial actions in the FS report, and identify if any of the sensitive habitat areas would need to be remediated. The additional data collected to meet these objectives is the subject of this technical memorandum.

Although PRGs were calculated for PCBs based on shellfish ingestion, PCB data showed very low concentrations in the sediments, and the PRG was not exceeded at any location. PCBs were selected for PRG development because they were detected in lobster tissue, and contributed to the human health risk calculated for the shellfish (lobster) ingestion scenario. However, PCBs are not thought to be one of the site related contaminants and are likely to have accumulated in the lobster tissue from other sources (TtNUS 2001A).

3.0 FIELD SAMPLING ACTIVITIES

This section presents a description of the field activities that were conducted in October and November 2001 for this Sediment Pre-Design Investigation.

The objective of this sediment pre-design investigation was to provide data to better assess the horizontal and vertical extent of PAHs and metals in the marine sediment at the OFFTA site. The resulting data is evaluated in Section 4 of this technical memorandum.

Activities associated with the sediment investigation included:

1. Mobilization/demobilization activities;
2. Collection of core sediment samples to evaluate the surface and subsurface sediments and to evaluate the volume of sediments exceeding PRGs;
3. Collection of supplemental surface sediment samples to better refine the areas of sediments exceeding PRGs;
4. Differential GPS survey of sample stations for georeference; and
5. Recording of the bottom conditions through photographs of each sample station.

3.1 MOBILIZATION/DEMOBILIZATION

Mobilization activities included preparation of technical specifications for sample collection and analysis subcontracts. Required field equipment and supplies were ordered and mobilized to the site. Field team members reviewed the Work Plan, the Health and Safety Plan, applicable Standard Operating Procedures (SOPs), and applicable subcontract specifications. A field team orientation meeting was conducted prior to initiating the fieldwork to familiarize the field team and subcontractor personnel with site health and safety requirements, the scope of the field activities, and essential sample handling procedures.

3.2 SAMPLE COLLECTION

Samples were collected in two groups: Grid and Supplemental samples. These samples were collected using a combination of methods described in the following subsections.

3.2.1 Samples Collected from Grid Points

Fifty-five samples were collected from 28 grid locations as shown in Figure 3-1. Twenty grid stations were initially plotted on 100-foot intervals. Eight more grid points were added to provide for a 50-foot resolution in the eelgrass area. Two more core stations were added at the end of the study to the south east of the site, toward the inner portions of Coasters Harbor. Stations were initially plotted in the field using GPS and were marked with an anchored buoy. Plan-view photos were taken of each sample station for the field record as described in Section 3.4.

Samples of sediment cores from depth intervals of 0.0 to 0.5 feet and 1.5 to 2.0 feet were collected from the grid locations. At most of these locations, a subcontracted diver collected each sample using an acetate lined coring device driven into the sediments as described below. At locations on the shoreline or nearshore areas, samples were collected using hand augers as described in Section 3.2.3. If refusal was encountered at any point above the target depth for that location, the diver was instructed to move anywhere within a one-half meter radius from the initial position. If refusal above the target depth was encountered after four attempts, then the core with the maximum depth achieved was selected for analysis.

Sampling was based from an open 25 foot work boat. A subcontracted diving crew conducted the sample collection at offshore locations under the supervision of a TtNUS field scientist. Sediment core samples were collected utilizing a decontaminated AMS 12-inch extendable stainless steel corer system. Figure 3-2 depicts the components of this corer system. Sediments were collected from the upper interval by pushing an open acetate core tube directly into the sediment to a depth of 12 inches, capping the exposed end, then gently withdrawing the tube from the sediment and capping the lower end. Sediments from the deeper intervals were collected by using the acetate inside the steel corebarrel, which was driven to the target depth using a slide or pneumatic hammer. In this manner, compaction of the sediment was minimized, and confidence of the sample interval was high.

Sample tubes were marked as to top and bottom of the core tubes, and with the depth and sample location identification number. They were then lifted to the surface and transferred to a TtNUS representative, who recorded penetration and recovery information, uncapped the acetate core liner, and slid the intended portion of the sediment core out of the tube into a steel bowl. It was found that the sediment retained the shape of the tube so that the target interval could be selected easily, without likelihood of contamination from the other sediments in the tube. Since the core tubes were driven into the subsurface at 12-inch intervals, and the samples were to be taken of six-inch intervals, the unused half of the sediment was discarded. The samples collected from 0-6 inches were represented by the top half of the sediment recovered from the core driven 0-12 inches below ground surface (bgs). The samples collected from 1.5-2.0 feet were represented by the bottom half of the sediment recovered from the core driven

12-24 inches bgs. For duplicate and matrix spike samples, co-located cores were driven into the sediments, and target intervals were separated as appropriate. Then the duplicates for each interval were mixed separately in steel bowls and containerized separately.

After separating the target sediments and depositing the material into the bowl, each core was inspected for visual evidence of potential contamination, and field screened with a Flame Ionization Detector (FID). Large stones and shell matter were removed. The remaining portion of sediment was homogenized and transferred to the sample containers provided by the analytical laboratory. Four ounces of sediments were required by the laboratory for analysis of PAHs, and an additional four ounces were required for metals. Once filled, sample bottles were labeled and double bagged, then placed on ice in coolers for shipment to the analytical laboratory. Samples were shipped via overnight express delivery to the laboratory.

Penetration and recovery information was recorded on the sample log sheets for core samples collected by the divers. Due to the equipment used and the nature of the substrate, the sample corers achieved penetration to the target depths at 12-inch intervals as planned. Most provided recoveries of 8-12 inches, depending on the softness and compactability of the sediment. However, at five stations (SD-406, 428, 463, 464 and 465), recovery was less than six inches.

At stations SD-406 and SD-428, the sediment was noted to be soft black muck that may have been subject to substantial compaction. Although the log sheets for the stations 463, 464 and 465 don't mention the presence of such a soft material, it is noted that these are all located near SD-406. All of these samples were taken from eelgrass areas, and most noted root material in the sample. Cutting through the root material is very likely to have caused some compaction in the substrate just before it entered the core barrel.

None of the samples with recoveries of less than six inches were noted to be in gravel or cobble-laden sands. Recovery problems in rocky substrate would indicate that cobbles were blocking the nose cone of the core tube, however, the absence of such substrate indicates the poor recovery is due to compaction, and therefore, short samples are believed to represent the entire length of the depth penetrated.

Refusal was met at one station, SD-429, prior to achieving the target depth. This station met a refusal at 5 inches bgs repeatedly by the diver. Therefore, one sample was taken from 0-5 inches at this location, representing the surface sediment. The second planned interval for this station (1.5-2.0 feet bgs) was not acquired.

3.2.2 Supplemental Samples

Supplemental samples were collected from 21 non-grid points. One sample was collected from each of these supplemental locations, from the 0.0-0.5 foot interval bgs. The purpose of these samples was to identify contaminant concentrations in areas off the grid to form a more complete picture of the extent of contaminated sediments at the OFFTA site. All procedures for collecting these samples were identical to those described in Section 3.2.1 (offshore locations) and 3.2.3 (nearshore and shoreline locations), with the exception of the single target sample depth for these supplemental samples.

3.2.3 Shoreline/Nearshore Samples

Sample stations that were located at and above the low tide line were sampled by staff scientists using hand augers, rather than by divers. Fourteen such stations were sampled in this manner (six grid stations and eight supplemental stations). Hand augers were used at these locations due to the flexibility of these tools to acquire sediments at target depths.

Six-inch-deep bucket augers were turned into the sediment by hand to the target depths. Once the target depths were reached, the augers were removed, and excess sediment (slough) was removed from the top of the auger. The material in the auger teeth up to a height of four inches above (to allow for compaction) was removed from the auger and placed into a stainless steel bowl for homogenization. Large stones and shell matter were removed. The remaining portion of sediment was homogenized and transferred to the sample containers provided by the analytical laboratory.

As noted previously, four ounces of sediments were required for analysis of PAHs, and an additional four ounces were required for metals. Once filled, sample bottles were labeled and double bagged, then placed on ice in coolers for shipment to the analytical laboratory. Samples were shipped via overnight express delivery to the laboratory.

3.3 DECONTAMINATION PROCEDURES

All non-disposable sampling equipment that contacted the sample medium was decontaminated to prevent cross-contamination between sampling points. This included sediment sampling spatulas, stainless steel bowls, scoops, split spoons, core barrels and core bits, etc. The following decontamination sequence was employed:

- remove gross contamination by scrubbing with sea water
- scrub with potable water/liquinox

- rinse with potable water
- rinse with deionized water
- rinse with 2-propanol
- air dry (to extent possible)
- wrap with aluminum foil, dull side toward equipment.

3.4 LOCATION SURVEY AND PHOTOGRAPHY

Proposed sediment sampling stations were depicted on a map provided in the Field Sampling Plan (TtNUS, November 2001). These locations were proposed based on the location of sensitive habitats that were mapped in the summer of 2001. The coordinates of the proposed stations were provided to a survey contractor, who used a Trimble Pro XR GPS to locate these stations.

Stations were located using the GPS receiver in real-time differential correction mode. Real-time corrections were made based on the USCG broadcast signal. The instrument manufacturer describes real-time accuracy of this unit to be better than one meter (3.3 feet). However, accuracy can be dependent on distance from the beacon, and the satellite constellation. Additionally, wind and waves initially hindered navigation to the predetermined positions.

After the positions were found, they were marked with a small buoy by a diver using a screw anchor, which provides no possibility for drag. Once so marked, the anchored stations were photographed by the divers. Water depths were measured by the support crew and recorded along with time and date so that they could be later corrected for tide, to provide an elevation of the ground surface.

Anchored locations were then recorded again using the Pro XR GPS and post-corrected using the Trimble MCORR400 differential correction software with base station files from the University of Rhode Island Environmental Data Center Community GPS base station. In this manner, the locations of the anchored stations were measured to within 50 cm (with the exception of Station 431, which had a measured accuracy of 1 meter). The coordinates for the anchored stations were compared with those for the proposed stations, and most (36) were found to be within two meters of the proposed stations. The remaining five anchored stations were measured to be within three meters of the proposed stations.

A complete analysis of the GPS survey, the measured water depths corrected to the Newport tide gauge, elevations and the proposed and final GPS survey locations are presented in a table provided as Appendix B.

4.0 FINDINGS OF THE INVESTIGATION

This section presents the findings of this sediment pre-design investigation conducted for the OFFTA site. It focuses on the data collected as described in Section 3, couples that data to the previously collected data for the OFFTA marine sediment, and compares the combined data set to the PRGs that are described in Section 2.3. Areas where PRGs are exceeded are identified as possible action areas, and should be considered for development of remedial action alternatives in the Feasibility Study report. These alternatives may include, but may not be limited to, no action, monitoring, removal, or some combination of all of these.

4.1 CHEMICAL DATA

Full validated analytical results from the samples collected as described in Section 3 of this technical memorandum are presented in Appendix A.

The reporting limits for the analytical laboratory were set to be below the PRGs in the laboratory specifications. However, some of the reporting limits were exceeded for some samples due to an increased sample extract volume. The extract volume was increased by the lab due to the high concentration of organic matter in the sediments and the resulting extract being too viscous. This is particularly a problem when analyzing sediments with a low solids content, as was the case in some of the offshore samples in the eastern portion of the study area.

The analytical results from the samples collected in November 2001 were combined with previously collected and validated analytical results from 1998 and 1999. The resulting data set was compared with the PRG values described in Section 2.3 and presented on Table 2-1. The results of this comparison are presented on Table 4-1, Table 4-2, and Table 4-3. Sample stations that exceed PRGs are presented on Figure 4-1. Figure 4-1 should be referenced for locations of all samples presented in the tables, and discussed below.

4.1.1 Exceedances of PRGs for Residential/Recreational Exposure to Sediment

Table 4-1 presents data from shoreline samples compared with the PRGs for human residential/recreational exposure to sediment. Those results which exceed the PRGs are backlit. Those results which were reported as undetected but whose detection limits exceeded the PRG values are shaded in grey. Note that this only occurred for PAHs at one station (SD-437) where the PRG for arsenic is exceeded.

This comparison shows clearly that one or more of the PRGs for residential/recreational exposure to sediments are exceeded at all the shoreline stations, primarily due to the very low PRGs calculated for benzo(a)pyrene and dibenzo(a,h)anthracene. Because all shoreline stations (those stations between mean high tide and mean low tide) exceed at least one of the PRGs for these compounds, the western and eastern boundary of the resulting possible action areas are defined only by the study area boundary.

4.1.2 Exceedances of PRGs for Lifetime Recreational Shellfish (Lobster) Ingestion

Table 4-2 presents data from the nearshore (at mean low tide) and offshore (below mean low tide) sediment samples compared with the PRGs for human lifetime recreational ingestion of shellfish (lobster). Those results that exceed the PRGs are backlit. No results were reported as undetected with detection limits exceeding the PRG values for this PRG set.

This comparison shows that PRGs for ingestion of shellfish were exceeded for PAHs at one location in the surface sediment (SD-410) and for arsenic at 12 locations in the surface sediment and seven locations in the subsurface sediment. The locations where arsenic exceeded this PRG did not correlate to any of the locations where PAHs exceeded PRGs in the surface sediment for any other receptor, nor did they show a pattern that could be correlated to the site or the site model. Additionally, for this PRG to be actionable, all the parameters of the model must be met, including the permanent residence of the lobsters at the area, the uptake of the arsenic by the lobsters, and the ingestion of the affected lobsters by the receptors.

4.1.3 Exceedances of PRGs for Ecological Exposure

Table 4-3 presents data from the nearshore (at mean low tide) and offshore (below mean low tide) sediment samples compared with the PRGs for ecological exposures. Those results that exceed the PRGs are backlit. Those results that were reported as undetected but whose detection limits exceeded the PRG values are shaded in grey. At seven stations, results for 2-methylnaphthalene are reported as undetected, with associated detection limits exceeding the ecological PRG of 185 ug/kg. For instance, the 2-methylnaphthalene result for SD-421 was reported as 260U ug/kg, indicating that none was present above that concentration. However, other related parameters in that sample were detected well below that level, for instance, anthracene was detected at 120J ug/kg. This indicates that the instruments would likely identify 2-methylnaphthalene if it were present at concentrations at or above 185 ug/kg.

This comparison shows that the sediments that exceed the ecological PRGs are limited to the nearshore sediments, with two exceptions, SD-410 and OFF-18.

Station OFF-18, (located near SD-468 and SD-469, depicted on Figure 2-3) was found to have an exceedance of 2-methylnaphthylene in the sediments taken from 1.6 to 1.8 feet bgs during the sampling effort conducted in 1998. Surface sediments taken at the same time at OFF-18 did not exceed PRGs and deeper sediments (3.4-3.6 feet bgs) also did not exceed PRGs. Since this seemed to be an isolated location where only one PRG was exceeded, and because the contaminated zone was below the predicted zone of bioturbation, this area should not be considered actionable. This conclusion is supported by the results from nearby locations SD-468 and SD-469. Results from these samples indicate no exceedances of PRGs for the sediments at depths of 1.5-2.0 feet at both stations, nor at the surface sediment at SD-469. Although the detection limits for 2-methylnaphthalene and acenaphthylene were above the PRGs in the surface interval at SD-468, other PAH detections in this sample were within range and did not show an indication of actionable PAH concentrations.

SD-410, located within the eelgrass bed at the western edge of the study area was found to have higher PAHs than other locations, with 2-methylnaphthalene exceeding the PRG. It is noted that a storm drain outfall is present approximately 100 feet to the south (shoreward) of this location. This occurrence, along with the data from shoreline stations near this location (SD-411 and 412), indicate that a hot spot may be present near this outfall, and additional sampling may be warranted west and south of SD-410 prior to finalizing the remedial action area.

Possible action areas for sediment include the nearshore (at mean low tide) samples OFF-3, OFF-5, and OFF-6. The sediments exceeding the PRGs are all at the surface: at locations OFF-3 and OFF-5 in the 0.0-0.5 foot interval; and at OFF-6 in the 0.7-0.8 foot interval. At OFF-5E, OFF-5, and OFF-6, core data is available that shows PAHs at concentrations below the PRG values in sediment greater than 1.0 foot bgs (Tables 4-1 and 4-3).

4.2 DATA DISCUSSION AND POSSIBLE ACTION AREAS

Figure 4-2 depicts possible action areas based on the PRG exceedances discussed above. Some of these possible action areas intrude slightly into the sensitive habitat areas defined in Section 2.2 of this technical memorandum. The possible action areas are roughly defined as described in this section.

PRGs for sediments were exceeded for arsenic and PAHs. Based on the data presented in Tables 4-1 through 4-3 and Appendix A, the highest concentrations of PAH compounds observed during this and previous efforts were found in two general areas. These areas coincide with the general vicinities of two outfalls that are within the study area at the North end of Coasters Harbor Island. It is possible that these outfalls were an historic source of contamination, draining the oil from fire training operations area into the marine environment at the site. However, it is also possible that these outfalls constitute a continuing

source of the PAH contamination found in the nearshore and offshore sediments, either as a preferential pathway for contaminants in the ground and flowing along the structure, or as a function of their current operation accepting drainage water from portions of roads and parking areas south of the OFFTA site (NSN, September 1994).

At most sediment core stations, PAH concentrations are higher in the surface sediment, and lower in the deeper sediment. At the shoreline stations, PRGs are exceeded in the sediment samples collected at 1.5-2.0 feet bgs, due primarily to the low residential/recreational PRGs set for benzo(a)pyrene; however the limited core data from the nearshore stations (Table 4-3) do not show PAHs exceeding these PRGs at this depth. This indicates that the deeper sediments at the beach face may be more contaminated than are the deep sediments further toward the ocean and away from the site. Regardless, the PRGs for residential/recreational exposures are aggressive, as they are based on the same exposure parameters as those for residential exposure to surface soils, and action below 2.0 feet on the beach face may be necessary.

All of the shoreline sediments (those between mean high tide and mean low tide) exceed at least one of the residential/recreational PRGs, and some nearshore (at mean low tide) and offshore (below mean low tide) sediments exceed the ecological PRGs. Additionally, there appears to be a localized hot spot at SD-410, although the western boundary of this hot spot is not defined.

It is evident from Figure 4-2 and Tables 4-1 through 4-3 that the shoreline sediments dominate the PRG exceedances overall. This is due to the low values for the PRGs developed for human residential/recreational exposure to sediments with benzo(a)pyrene and dibenzo(a,h)anthracene. Thus it is evident that the exposure, not the contaminant concentrations, drives the exceedances. Because all the shoreline sediments exceed one or more of these PRGs, it is apparent that all the sediments available for this exposure should be considered for development of remedial action alternatives in the Feasibility Study report.

Since the nearshore and offshore sediments that exceed PRGs are in areas close to shoreline sediments, it is recommended that areas considered for remedial action alternatives be based on the low tide line, with excursions seaward at OFF-3, OFF-5, and OFF-6. Additional sampling is recommended to the north and west of SD-410 to determine the extent of this apparent hot spot.

4.3 WATER DEPTH INFORMATION

As described in Section 3, water depths at sampling stations were measured during sampling efforts and were corrected to tide so that the ground elevation was determined, relative to mean sea level (MSL).

Figure 4-3 presents the water depths at stations sampled during November 2001, and an interpreted subtidal topography of the study area.

5.0 SUMMARY AND CONCLUSIONS

The findings of the investigation focus on the location of sediments exceeding PRGs. A depiction of the approximate aerial extent of these sediments is presented on Figure 4-2. The investigation findings are summarized below:

1. All shoreline sediment (those taken between mean high tide and mean low tide) samples exceed one or more of the PRGs for the residential/recreational human exposure to sediment due to the conservative parameters of that presumed exposure. These shoreline sediments should all be considered for various remedial action alternatives within the boundaries of the study area.
2. Nearshore sediments (those at the approximate mean low tide) exceed ecological PRGs in surface samples at stations OFF-3 and OFF-5, which are located at the low tide line. Nearshore sediments at OFF-6 slightly exceed one PAH PRG at 0.7 to 0.8 feet bgs, but not in the surface sediment (0.0 to 0.5 feet bgs) or in the deeper sediment (1.1 to 1.3 feet bgs) at this station. Because they are contiguous with shoreline sediments, these nearshore sediments are recommended to be considered for development of various remedial action alternatives in the FS report.
3. One location at the southern edge of the eelgrass bed (SD-410) near the west outfall exceeded ecological PRGs. PAH concentrations in the surface sediment at this location are the highest detected in sediment within the study area. Since this is the western-most location sampled during this investigation, the western boundary of this apparent “hot spot” is not defined, and additional samples will be required to determine the western limit of contamination. Remedial action alternatives considered for sediment within the eelgrass beds should preserve the integrity of the habitat. Based on the apparent health of the eelgrass beds, contaminants present do not appear to be having an adverse effect on them, and monitoring sediment quality after other actions have been completed may be more appropriate than any intrusive action.

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REFERENCES

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TABLES

TABLE 2-1
SUMMARY OF PRELIMINARY REMEDIATION GOALS (PRGs) FOR MARINE SEDIMENT
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Contaminant	Ecological PRGs	Human Health Lifetime Recreational Exposure PRGs	Human Health Lifetime Recreational Lobster Ingestions PRGs
Polyaromatic Hydrocarbons (ug/kg)			
2-Methylnaphthalene	185		
Acenaphthylene	697		
Benz(a)anthracene		1338	34270
Benzo(a)pyrene		134	9360
Benzo(b)fluoranthene		1338	51296
Dibenz(a,h)anthracene	2434	134	6742
Indeno(1,2,3-cd)pyrene	5633		72519
PCB/Pesticides			
Total PCB Congeners			175
Metals (mg/kg)			
Arsenic**		6.2**	5.48
Cadmium			10
Chromium			3708
Mercury			2.3

Note: All human health PRGs are based on an exposure specific risk of 1E-6.

Human health wading PRGs are calculated from and applicable to shoreline sediment.


Lobster Ingestion PRGs only compared to nearshore and offshore sediment.


Ecological PRGs only compared to nearshore and offshore sediment.

** Arsenic PRG for human health is based on Human Health Risk Assessment and background assessment.

TABLE 4-1
CONTAMINANTS EXCEEDING PRGS
LIFETIME RESIDENTIAL/RECREATIONAL EXPOSURE TO SEDIMENT
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number		OFF-5E-SD-2025		OFF-5E-SD-5560		OFF-SD-411-0006		OFF-SD-412-0006		OFF-SD-413-0006		OFF-SD-414-0006		OFF-SD-417-0006		OFF-SD-424-0006	
Sample Location		OFF-5E		OFF-5E		SD-411		SD-412		SD-413		SD-414		SD-417		SD-424	
Date Sampled		4/27/1998		4/27/1998		11/13/2001		11/13/2001		11/13/2001		11/9/2001		11/13/2001		11/13/2001	
Interval		0.7-0.8		1.8-2.0		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Residential/ Recreational Sediment PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		18.7		3.6	U	66	U	28	J	58	U	100	J	68	U	58	U
Acenaphthylene		11		0.2	J	100		580		81	J	1500	J	250		38	J
Benzo(a)anthracene	1338	829		8	U	840		1400		430	J	4900	J	1100		300	
Benzo(a)pyrene	134	648		3	U	680	J	1000		320	J	3900	J	810		230	J
Benzo(b)fluoranthene	1338		NA		NA	990	J	1200		470	J	5100	J	1000		320	J
Dibenzo(a,h)anthracene	134	115		1	J	66	UJ	120		58	UJ	480	J	94		58	UJ
Indeno(1,2,3-cd)pyrene		302		1.5	J	200	J	400		86	J	1600	J	310		85	J
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners		4.3		0.50			NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic	6.2**	7.3	J	4.6	J	4.4	J	5.4	J	4.7	J	6.7	J	5.2	J	5.8	J
Cadmium		0.11		0.10		0.024	UJ	0.023	UJ	0.022	UJ	0.87	J	1.5	J	0.13	J
Chromium		19.7		23.2		11.2		17.5		10.7		21.3	J	12.1		26.1	
Mercury		0.062		0.050	U	0.058		0.019	J	0.017	U	0.018	U	0.066		0.035	


 - denotes exceedance of PRG

 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed
 ** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4-1 (cont.)
CONTAMINANTS EXCEEDING PRGS
LIFETIME RESIDENTIAL/RECREATIONAL EXPOSURE TO SEDIMENT
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 2 OF 4

Sample Number		OFF-SD-425-0006		OFF-SD-432-0006		OFF-SD-432-0006-D		OFF-SD-432-1824		OFF-SD-439-0006		OFF-SD-439-0006-D		OFF-SD-439-0612	
Sample Location		SD-425		SD-432		SD-432		SD-432		SD-439		SD-439		SD-439	
Date Sampled		11/13/2001		11/13/2001		11/13/2001		11/13/2001		10/29/2001		10/29/2001		10/29/2001	
Interval		0.0-0.5		0.0-0.5		0.0-0.5		1.5-2.0		0.0-0.5		0.0-0.5		0.5-1.0	
QC Identifier	Residential/ Recreational Sediment PRG	None		Field Dup. OFF-SD-432-0006		Field Dup. OFF-SD-432-0006		None		Field Dup. OFF-SD-439-0006		Field Dup. OFF-SD-439-0006		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene		44	J	55	U	58	U	60	J	370	U	370	U	47	J
Acenaphthylene		52	J	84		100		760		370	U	57	J	160	J
Benzo(a)anthracene	1338	830		340		520		2800		540		490		1400	
Benzo(a)pyrene	134	640	J	240		370		2000		550		500		710	
Benzo(b)fluoranthene	1338	900	J	300		500		2600		680		680		1400	
Dibenzo(a,h)anthracene	134	54	UJ	55	U	58	U	240		74	J	68	J	85	J
Indeno(1,2,3-cd)pyrene		200	J	120		140		810		240	J	200	J	240	J
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	6.2**	10.6	J	4.7	J	6.1	J	4.6	J	2.4		1.5		14.9	
Cadmium		2.8	J	0.020	UJ	2.2	J	2.3	J	0.60	J	1.4	J	1.2	J
Chromium		18.6		11.5		12.7		12.1		9.5	J	21.3	J	17.5	J
Mercury		0.056		0.019	J	0.019	U	0.019	J	0.016	U	0.032	J	0.061	


 - denotes exceedance of PRG

 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed
 ** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4-1 (cont.)
CONTAMINANTS EXCEEDING PRGS
LIFETIME RESIDENTIAL/RECREATIONAL EXPOSURE TO SEDIMENT
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 3 OF 4

Sample Number		OFF-SD-439-1824		OFF-SD-442-0006		OFF-SD-442-1824		OFF-SD-445-0006		OFF-SD-445-1824		OFF-SSD-333-00005		OFF-SSD-333-00005-MAX	
Sample Location		SD-439		SD-442		SD-442		SD-445		SD-445		OFF-SSD-333		OFF-SSD-333	
Date Sampled		11/13/2001		11/9/2001		11/13/2001		11/13/2001		11/13/2001		11/19/1998		11/19/1998	
Interval		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		0.0-0.5	
QC Identifier	Residential/ Recreational Sediment PRG	None		None		None		None		None		Field Dup. OFF-SSD-333-00005		Field Dup. OFF-SSD-333-00005	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene		44	J	58	J	61	U	67	U	46	J	1800	U	1800	U
Acenaphthylene		41	J	870		56	J	76		66	J	1800	U	1800	U
Benzo(a)anthracene	1338	430		2900		360		570		450		850	J	1100	
Benzo(a)pyrene	134	440	J	2400	J	290	J	500		470	J	770	J	910	
Benzo(b)fluoranthene	1338	530	J	3200	J	400	J	670		640	J	940	J	1100	
Dibenzo(a,h)anthracene	134	59	UJ	280	J	61	UJ	67	U	66	UJ	1800	U	1800	U
Indeno(1,2,3-cd)pyrene		150	J	990	J	81	J	160		160	J	430	J	550	
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	6.2**	6.1	J	7.2	J	9.1	J	2.6	J	7.2	J	3.1	J	4.3	
Cadmium		2.2	J	0.62	J	0.63	J	0.82	J	2.1	J	0.080	U	0.080	U
Chromium		20.1		10.2		18.7		6.2	J	30.3		12.3		13.0	
Mercury		0.068		0.020	J	0.035		0.058		0.18		0.050	U	0.050	U


 - denotes exceedance of PRG


 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed
 ** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4-1 (cont.)
CONTAMINANTS EXCEEDING PRGS
LIFETIME RESIDENTIAL/RECREATIONAL EXPOSURE TO SEDIMENT
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 4 OF 4

Sample Number		OFF-SSD-334-00005		OFF-SSD-335-00005		OFF-SSD-336-00005		OFF-SSD-337-00005	
Sample Location		OFF-SSD-334		OFF-SSD-335		OFF-SSD-336		OFF-SSD-337	
Date Sampled		11/19/1998		11/19/1998		11/19/1998		11/19/1998	
Interval		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Residential/ Recreational Sediment PRG	None		None		None		None	
Semivolatile Organic Analysis (UG/KG)									
2-Methylnaphthalene		2300	U	2100	U	4000	U	4000	U
Acenaphthylene		230	J	2100	U	4000	U	4000	U
Benzo(a)anthracene	1338	1900	J	1800	J	620	J	4000	U
Benzo(a)pyrene	134	1400	J	1300	J	520	J	4000	U
Benzo(b)fluoranthene	1338	2300	U	1700	J	610	J	4000	U
Dibenzo(a,h)anthracene	134	290	J	2100	U	4000	U	4000	U
Indeno(1,2,3-cd)pyrene		1000	J	950	J	4000	U	4000	U
Pesticide/PCB Analysis (UG/KG)									
Sum of PCB Congeners			NA		NA		NA		NA
TAL Metal Analysis (MG/KG)									
Arsenic	6.2**	5.3	J	4.2	J	4.8		7.1	
Cadmium		0.10	U	0.10	U	0.090	UJ	0.090	UJ
Chromium		13.3		11.8		10.9		15.8	
Mercury		0.060	U	0.060	U	0.060	U	0.050	U


 - denotes exceedance of PRG

 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed
 ** - Arsenic PRG for human exposure to sediment is based on HHRA and Background Assessment

TABLE 4-2
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number		OFF-1-SD-0015		OFF-2-SD-0015		OFF-3-SD-0015		OFF-4-SD-0015		OFF-5-SD-0015		OFF-5-SD-2025		OFF-5-SD-5560		OFF-6-SD-0015	
Sample Location		OFF-1		OFF-2		OFF-3		OFF-4		OFF-5		OFF-5		OFF-5		OFF-6	
Date Sampled		3/27/1998		3/27/1998		3/27/1998		3/27/1998		3/27/1998		4/27/1998		4/27/1998		3/27/1998	
Interval		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.7-0.8		1.8-2.0		0.0-0.5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		26	J	77.6	J	89.2	J	38.1	J	330	J	42.5		3.6	U	170	J
Acenaphthylene		93		488		350		424		509		144		4.6	U	195	
Benzo(a)anthracene	34270	100		3600		5690		2280		9300		882		8	U	4250	
Benzo(a)pyrene	9360	595		2410		3450	J	2090		4830		973		3	U	1990	
Benzo(b)fluoranthene	51269		NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	6742	441	J	1290	J	2810	J	352	J	3410	J	345		2.8	U	1390	J
Indeno(1,2,3-cd)pyrene	72519	1010		3070		6560	J	1200		7390		524		1.2	J	3030	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175	18.9		22.9		29.8		36.1		51.6		37		3.0		38.2	
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	6.3	J	8.0	J	3.6	J	4.3	J	3.6	J	4.9	J	5.3	J	4.1	J
Cadmium	10	0.31		0.14		0.18		0.060		0.23		0.55		1.29		0.15	
Chromium	3708	31.1		36.6		26.5		24.3		27.4		17.6		29.5		23.0	
Mercury	2.3	0.371		0.081		0.050	U	0.050	U	0.050	U	0.071		0.050	U	0.050	U

 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 2 OF 14

Sample Number		OFF-6-SD-2025		OFF-6-SD-3540		OFF-7-SD-0015		OFF-8-SD-0015		OFF-9-SD-0015		OFF-10-SD-0015		OFF-10-SD-1520		OFF-10-SD-2530	
Sample Location		OFF-6		OFF-6		OFF-7		OFF-8		OFF-9		OFF-10		OFF-10		OFF-10	
Date Sampled		4/27/1998		4/27/1998		3/27/1998		4/7/1998		4/7/1998		4/3/1998		4/7/1998		4/7/1998	
Interval		0.7-0.8		1.1-1.3		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.5-0.7		0.8-1.0	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		280		9.6		54.9		14.4		3.1	J	3.1	J	3	J	2.6	J
Acenaphthylene		95.8		3.1	J	169		18.5		5.7		4.1	J	3	J	2.1	J
Benzo(a)anthracene	34270	988		118		1160		214		57.3		35.2		23.4		15.5	
Benzo(a)pyrene	9360	1750		116		1330		218		76.1		45.1		31.3		19.8	
Benzo(b)fluoranthene	51269		NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	6742	357		22.3		293		41.5		13.6	U	8.6	J	6.6		4.8	
Indeno(1,2,3-cd)pyrene	72519	1140		72.2		968		136		48.1		35.3		26.9		14.8	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175	106.9		2.7		30.5		10.6		4.7		5.5		2.9		0.40	
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	7.5	J	3.7	J	6.8	J	4.3	J	4.3	J	3.4	J	2.9	J	3.3	J
Cadmium	10	0.68		0.14		0.29		0.19		0.11		0.15		0.18		0.070	
Chromium	3708	35.3		29.7		43.1		42.3		38.6		32.1		30.1		39.2	
Mercury	2.3	0.176		0.050	U	0.119		0.148		0.050	U	0.070		0.070		0.073	



 - denotes exceedance of PRG

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 3 OF 14

Sample Number		OFF-11-SD-0015		OFF-11-SD-5055		OFF-11-SD-105110		OFF-12-SD-0015		OFF-13-SD-0015		OFF-14-SD-0015		OFF-15-SD-0015		OFF-16-SD-0015	
Sample Location		OFF-11		OFF-11		OFF-11		OFF-12		OFF-13		OFF-14		OFF-15		OFF-16	
Date Sampled		4/3/1998		4/7/1998		4/7/1998		4/3/1998		4/3/1998		4/7/1998		4/7/1998		4/3/1998	
Interval		0.0-0.5		1.6-1.8		3.4-3.6		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		17.5	J	3.6	U	3.6	U	117	J	65.6	J	15.5		9.5		23.9	J
Acenaphthylene		9		1.1	J	4.6	U	58.3		156	J	25.2		11.9		35.8	J
Benzo(a)anthracene	34270	168		44.7		8	U	1200		1160	J	216		106		195	J
Benzo(a)pyrene	9360	148		37.5		3	U	1420		1150	J	255		103		220	J
Benzo(b)fluoranthene	51269		NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	6742	23.9	J	4.8		0.8	J	280	J	213	J	52.2		44		49.6	J
Indeno(1,2,3-cd)pyrene	72519	86.3		23.1		1.5	J	777		646	J	172		116		156	J
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175	44.2		2.0		0.70		65.1		95.5		24.8		7.3		22.7	
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	2.7	J	5.0	J	4.7	J	5.2	J	6.0	J	8.5	J	3.7	J	5.0	J
Cadmium	10	0.22		0.27		0.20		0.53		0.80		0.12		0.18		0.36	
Chromium	3708	30.2		32.1		231.7		58.6		73.7		44.9		41.0		48.0	
Mercury	2.3	0.125		0.050	U	0.051		0.376		1.355		0.196		0.10		0.208	

 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 4 OF 14

Sample Number		OFF-17-SD-0015		OFF-18-SD-0015		OFF-18-SD-5055		OFF-18-SD-105110		OFF-19-SD-0015		OFF-20-SD-0015		OFF-21-SD-0015		OFF-22-SD-0015	
Sample Location		OFF-17		OFF-18		OFF-18		OFF-18		OFF-19		OFF-20		OFF-21		OFF-22	
Date Sampled		4/3/1998		4/3/1998		4/7/1998		4/7/1998		4/7/1998		4/3/1998		4/3/1998		3/27/1998	
Interval		0.0-0.5		0.0-0.5		1.6-1.8		3.4-3.6		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		19.7	J	63.8	J	210		91.1		31.5		40.4	J	13.1	J	3.1	J
Acenaphthylene		41.1		141		210		80.2		40.6		14.8		18.3		4.4	J
Benzo(a)anthracene	34270	251		730		787		1260		316		320		151		35.6	
Benzo(a)pyrene	9360	333		964		931		1170		322		257		176		38.8	
Benzo(b)fluoranthene	51269		NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	6742	76.1	J	273	J	248		204		57.4		50.3	J	40.4	J	12.2	J
Indeno(1,2,3-cd)pyrene	72519	237		785		821		619		195		150		126		33.9	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175	16.6		62.9		46.8		12		28.4		18.9		15.6		2.8	
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	4.7	J	6.3	J	5.6	J	6.4	J	5.8	J	4.2	J	4.9	J	3.8	J
Cadmium	10	0.38		0.69		1.12		0.50		0.21		0.25		0.39		0.19	
Chromium	3708	44.1		73.6		79.7		76.4		55.6		52.5		52.9		47.8	
Mercury	2.3	0.225		0.562		0.97		1.901		0.299		0.171		0.112		0.111	


 - denotes exceedance of PRG

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 5 OF 14

Sample Number		OFF-23-SD-0015		OFF-SD-406-0006		OFF-SD-407-0006		OFF-SD-408-0006		OFF-SD-408-0006-D		OFF-SD-409-0006		OFF-SD-409-0006-D		OFF-SD-410-0006	
Sample Location		OFF-23		SD-406		SD-407		SD-408		SD-408		SD-409		SD-409		SD-410	
Date Sampled		4/3/1998		11/12/2001		11/12/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Lobster Ingestion PRG	None		None		None		Field Dup. OFF-SD-408-0006		Field Dup. OFF-SD-408-0006		Field Dup. OFF-SD-409-0006		Field Dup. OFF-SD-409-0006		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		43.4		64	U	66	U	60	U	64	UJ	61	U	77	UJ	470	
Acenaphthylene		77.5		64	U	66	U	60	U	64	UJ	61	U	77	UJ	400	
Benzo(a)anthracene	34270	616		64	U	66	U	85		110	J	58	J	110	J	9200	
Benzo(a)pyrene	9360	758		64	U	66	U	90		130	J	69		120	J	9500	
Benzo(b)fluoranthene	51269		NA	64	U	66	U	120		170	J	78		160	J	12000	
Dibenzo(a,h)anthracene	6742	179		64	U	66	U	60	U	64	UJ	61	U	77	UJ	1500	
Indeno(1,2,3-cd)pyrene	72519	511		64	U	66	U	74		100	J	61	U	77	UJ	5200	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175	44.6		NA		NA		NA		NA		NA		NA		NA	
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	4.8	J	2.4		2.1		3.1	J	3.0	J	6.4	J	4.9	J	4.4	J
Cadmium	10	0.43		0.025	U	0.022	U	0.021	U	0.025	U	0.022	U	0.031	U	0.025	U
Chromium	3708	53.2		10.8		11.4		11.3		13.6		11.2		15.4		17.5	
Mercury	2.3	0.387		0.032	J	0.038	J	0.029	J	0.035	J	0.030	J	0.073		0.060	



 - denotes exceedance of PRG

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 6 OF 14


Sample Number		OFF-SD-415-0006		OFF-SD-416-0006		OFF-SD-418-0006		OFF-SD-419-0006		OFF-SD-419-0006-D		OFF-SD-420-0006		OFF-SD-421-0006		OFF-SD-422-0006	
Sample Location		SD-415		SD-416		SD-418		SD-419		SD-419		SD-420		SD-421		SD-422	
Date Sampled		11/12/2001		11/14/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001	
Interval		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Lobster Ingestion PRG	None		None		None		Field Dup. OFF-SD-419-0006		Field Dup. OFF-SD-419-0006		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		62	U	61	U	120	U	130	U	140	U	280	U	260	U	290	U
Acenaphthylene		24	J	280		120	U	91	J	130	J	120	J	260	U	210	J
Benzo(a)anthracene	34270	120	J	1200		180		580		530		860		320		1300	
Benzo(a)pyrene	9360	140	J	1400		160		470		540		850		340		1000	
Benzo(b)fluoranthene	51269	160		1600		180		600		700		1000		420		1200	
Dibenzo(a,h)anthracene	6742	62	U	220		120	U	130	U	140	U	280	U	260	U	290	U
Indeno(1,2,3-cd)pyrene	72519	91		860		80	J	200		200	J	310	J	150	J	500	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	2.2		3.3	J	3.2	J	2.7	J	2.9	J	3.4	J	2.6	J	3.5	J
Cadmium	10	0.023	U	0.021	U	0.47	J	0.44	J	0.45	J	0.52	J	0.42	J	0.57	J
Chromium	3708	10.6		10.8		11.3		11.8		12.4		14.6		12.7		15.9	
Mercury	2.3	0.049		0.037	J	0.053		0.057		0.061		0.085		0.078		0.096	

 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 7 OF 14


Sample Number		OFF-SD-423-0006		OFF-SD-426-0006		OFF-SD-427-1824		OFF-SD-427-1824-D		OFF-SD-427-0006		OFF-SD-428-0006		OFF-SD-428-1824	
Sample Location		SD-423		SD-426		SD-427		SD-427		SD-427		SD-428		SD-428	
Date Sampled		11/8/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001		11/14/2001		11/14/2001	
Interval		0.0-0.5		0.0-0.5		1.5-2.0		1.5-2.0		0.0-0.5		0.0-0.5		1.5-2.0	
QC Identifier	Lobster Ingestion PRG	None		None		Field Dup. OFF-SD-427-1824		Field Dup. OFF-SD-427-1824		None		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene		380	U	63	U	60	U	58	U	82	U	73	U	60	U
Acenaphthylene		380	U	63	U	60	U	58	U	82	U	64	J	47	J
Benzo(a)anthracene	34270	1600		63	U	60	U	58	U	82	U	580		370	
Benzo(a)pyrene	9360	1600		63	U	60	U	58	U	82	U	530	J	320	J
Benzo(b)fluoranthene	51269	2100		63	U	60	U	58	U	82	U	740	J	420	J
Dibenzo(a,h)anthracene	6742	380	U	63	U	60	U	58	U	82	U	73	UJ	60	UJ
Indeno(1,2,3-cd)pyrene	72519	560	J	63	U	60	U	58	U	82	U	200	J	120	J
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic	5.48	6.9	J	2.8	J	2.4	J	2.0		2.6		4.5	J	3.1	J
Cadmium	10	1.1	J	0.024	UJ	0.022	U	0.021	U	0.029	U	0.030	UJ	0.023	UJ
Chromium	3708	27.5		10.2		13.5		13.7		14.0		15.6		11.8	
Mercury	2.3	0.23		0.025	J	0.026	J	0.027		0.041	J	0.059		0.096	

 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 8 OF 14


Sample Number		OFF-SD-429-0006		OFF-SD-430-0006		OFF-SD-430-1824		OFF-SD-431-0006		OFF-SD-431-1824	
Sample Location		SD-429		SD-430		SD-430		SD-431		SD-431	
Date Sampled		11/12/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001	
Interval		0.0-0.5		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)											
2-Methylnaphthalene		65	U	63	U	61	U	62	U	58	U
Acenaphthylene		65	U	63	U	61	U	62	U	58	U
Benzo(a)anthracene	34270	65	U	63	U	61	U	62	U	58	U
Benzo(a)pyrene	9360	65	U	63	U	61	U	62	U	58	U
Benzo(b)fluoranthene	51269	65	U	63	U	61	U	62	U	58	U
Dibenzo(a,h)anthracene	6742	65	U	63	U	61	U	62	U	58	U
Indeno(1,2,3-cd)pyrene	72519	65	U	63	U	61	U	62	U	58	U
Pesticide/PCB Analysis (UG/KG)											
Sum of PCB Congeners	175		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)											
Arsenic	5.48	4.7	J	2.6	J	4.5	J	1.4	J	3.2	J
Cadmium	10	0.024	U	0.026	U	0.022	U	0.024	U	0.023	U
Chromium	3708	17.6		11.6		14.8		12.3		14.8	
Mercury	2.3	0.070		0.061		0.032	J	0.040	J	0.033	J

 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 9 OF 14


Sample Number		OFF-SD-433-0006		OFF-SD-433-1824		OFF-SD-434-0006		OFF-SD-434-0006-D		OFF-SD-434-1824		OFF-SD-435-0006		OFF-SD-435-1824		OFF-SD-436-0006	
Sample Location		SD-433		SD-433		SD-434		SD-434		SD-434		SD-435		SD-435		SD-436	
Date Sampled		11/12/2001		11/12/2001		11/14/2001		11/14/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001	
Interval		0.0-0.5		1.5-2.0		0.0-0.5		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5	
QC Identifier	Lobster Ingestion PRG	None		None		Field Dup. OFF-SD-434-0006		Field Dup. OFF-SD-434-0006		None		None		None		Field Dup. OFF-SD-436-0006	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		68	U	61	U	65	U	67	U	62	U	72	U	60	U	64	U
Acenaphthylene		68	U	61	U	93		51	J	94		72	U	60	U	210	
Benzo(a)anthracene	34270	68	U	61	U	400		330		540		72	U	60	U	980	
Benzo(a)pyrene	9360	68	U	61	U	340	J	280	J	460		32	J	60	U	850	
Benzo(b)fluoranthene	51269	37	J	61	U	440	J	360	J	570		48	J	60	U	1000	
Dibenzo(a,h)anthracene	6742	68	U	61	U	65	UJ	67	UJ	60	J	72	U	60	U	140	
Indeno(1,2,3-cd)pyrene	72519	68	U	61	U	120	J	94	J	190		27	J	60	U	540	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	2.2	J	5.4	J	3.6	J	3.4	J	3.3	J	2.5	J	2.3	J	6.0	J
Cadmium	10	0.025	U	0.022	U	0.026	UJ	0.026	UJ	0.023	UJ	0.027	U	0.020	U	0.022	U
Chromium	3708	11.9		12.2		11.8		12.1		11.1		14.1		11.1		11.8	
Mercury	2.3	0.053		0.019	U	0.030	J	0.036	J	0.033	J	0.050		0.018	U	0.023	J

 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 10 OF 14


Sample Number		OFF-SD-436-0006-D		OFF-SD-436-1824		OFF-SD-437-0006		OFF-SD-437-1824		OFF-SD-438-0006		OFF-SD-438-1824		OFF-SD-440-0006		OFF-SD-440-1824	
Sample Location		SD-436		SD-436		SD-437		SD-437		SD-438		SD-438		SD-440		SD-440	
Date Sampled		11/12/2001		11/12/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001	
Interval		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	Lobster Ingestion PRG	Field Dup. OFF-SD-436-0006		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		65	U	26	J	140	U	120	U	130	U	120	U	120	U	120	U
Acenaphthylene		210		280		140	U	120	U	150		120	U	140		120	U
Benzo(a)anthracene	34270	1200		1200		140		120	U	770		120	U	580		120	U
Benzo(a)pyrene	9360	1000		1100		130	J	120	U	740		120	U	580		120	U
Benzo(b)fluoranthene	51269	1300		1300		160		120	U	880		120	U	660		120	U
Dibenzo(a,h)anthracene	6742	170		160		140	U	120	U	130	U	120	U	120	U	120	U
Indeno(1,2,3-cd)pyrene	72519	610		680		62	J	120	U	280	J	120	U	270		120	U
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	3.9		5.5	J	3.4	J	2.3	J	4.1	J	1.9	J	2.6	J	1.8	J
Cadmium	10	0.025	U	0.024	U	0.40	J	0.34	J	0.43	J	0.27	J	0.41	J	0.25	J
Chromium	3708	10.8		14.9		11.6		9.4		11.7		11.4		11.2		8.2	
Mercury	2.3	0.027		0.047		0.057		0.019	U	0.045		0.019	U	0.066		0.018	U

 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 11 OF 14


Sample Number		OFF-SD-441-0006		OFF-SD-441-1824		OFF-SD-443-0006		OFF-SD-443-1824		OFF-SD-444-0006		OFF-SD-444-1824		OFF-SD-446-0006		OFF-SD-446-1824	
Sample Location		SD-441		SD-441		SD-443		SD-443		SD-444		SD-444		SD-446		SD-446	
Date Sampled		11/8/2001		11/8/2001		11/13/2001		11/13/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001	
Interval		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		630	U	160	U	67	U	67	U	130	U	77	J	300	U	53	J
Acenaphthylene		630	U	160	U	110		67	U	100	J	140	U	330		58	J
Benzo(a)anthracene	34270	600	J	180		670		58	J	530		960		2300		590	
Benzo(a)pyrene	9360	570	J	170		550		43	J	540		860		2500		700	J
Benzo(b)fluoranthene	51269	670		180		690		53	J	680		950		3100		920	J
Dibenzo(a,h)anthracene	6742	630	U	160	U	67	U	67	U	130	U	140	U	270	J	150	UJ
Indeno(1,2,3-cd)pyrene	72519	310	J	85	J	180		67	U	220	J	290	J	1000	J	290	J
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	1.7	J	4.5	J	3.1	J	3.4	J	2.1	J	3.7	J	4.2	J	7.9	J
Cadmium	10	0.37	J	0.73	J	1.1	J	0.79	J	0.41	J	0.55	J	0.59	J	1.2	J
Chromium	3708	10.3		18.2		9.0	J	9.0		12.0		14.6		17.2		25.6	
Mercury	2.3	0.060		0.41		0.091		0.022	U	0.065		0.20		0.11		0.33	

 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 12 OF 14

Sample Number		OFF-SD-460-0006		OFF-SD-460-1824		OFF-SD-461-0006		OFF-SD-461-1824		OFF-SD-462-0006		OFF-SD-462-1824		OFF-SD-463-0006		OFF-SD-463-1824	
Sample Location		SD-460		SD-460		SD-461		SD-461		SD-462		SD-462		SD-463		SD-463	
Date Sampled		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		65	U	62	U	67	U	55	U	68	U	60	U	61	U	59	U
Acenaphthylene		65	U	62	U	67	U	55	U	68	U	60	U	61	U	59	U
Benzo(a)anthracene	34270	120		29	J	67	U	55	U	110		60	U	61	U	59	U
Benzo(a)pyrene	9360	140		40	J	46	J	55	U	130		60	U	61	U	59	U
Benzo(b)fluoranthene	51269	200		42	J	56	J	55	U	160		60	U	61	U	59	U
Dibenzo(a,h)anthracene	6742	65	U	62	U	67	U	55	U	68	U	60	U	61	U	59	U
Indeno(1,2,3-cd)pyrene	72519	110		62	U	67	U	55	U	98		60	U	61	U	59	U
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	3.9	J	3.6	J	3.0	J	5.4	J	3.4	J	4.8	J		NA	2.3	J
Cadmium	10	0.024	U	0.023	U	0.026	U	0.021	U	0.026	U	0.023	U		NA	0.024	UJ
Chromium	3708	14.0		14.7		15.2		11.9		14.0		13.2			NA	10.6	
Mercury	2.3	0.047	J	0.032	J	0.047	J	0.015	U	0.028	J	0.019	U		NA	0.016	U

 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 13 OF 14

Sample Number		OFF-SD-464-0006		OFF-SD-464-1824		OFF-SD-465-0006		OFF-SD-465-1824		OFF-SD-466-0006		OFF-SD-466-1824		OFF-SD-467-0006		OFF-SD-467-1824	
Sample Location		SD-464		SD-464		SD-465		SD-465		SD-466		SD-466		SD-467		SD-467	
Date Sampled		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	Lobster Ingestion PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene		70	U	56	U	63	U	58	U	62	U	63	U	69	U	61	U
Acenaphthylene		70	U	56	U	63	U	58	U	74	J	63	U	69	U	61	U
Benzo(a)anthracene	34270	34	J	56	U	32	J	26	J	420	J	280		63	J	61	U
Benzo(a)pyrene	9360	70	U	56	U	63	UJ	58	U	370		420		53	J	61	U
Benzo(b)fluoranthene	51269	70	U	56	U	63	UJ	24	J	450		450		74		61	U
Dibenzo(a,h)anthracene	6742	70	U	56	U	63	UJ	58	U	62	U	62	J	69	U	61	U
Indeno(1,2,3-cd)pyrene	72519	70	U	56	U	63	UJ	58	U	150	J	210		69	U	61	U
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners	175		NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic	5.48	3.8	J	4.6	J	2.2	J	4.4	J	2.2	J	3.0	J	2.2	J	6.3	J
Cadmium	10	0.028	U	0.021	U	0.024	UJ	0.021	UJ	0.025	UJ	0.025	UJ	0.024	UJ	0.022	UJ
Chromium	3708	14.5		14.5		9.9		9.7		7.0		12.8		11.2		13.1	
Mercury	2.3	0.069		0.017	U	0.050		0.020	U	0.023	J	0.093		0.032	J	0.043	



 - denotes exceedance of PRG

TABLE 4-2 (cont.)
CONTAMINANTS EXCEEDING PRGs
LIFETIME RECREATIONAL INGESTION OF SHELLFISH (LOBSTER)
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 14 OF 14


Sample Number		OFF-SD-468-0006		OFF-SD-468-1824		OFF-SD-469-0006		OFF-SD-469-1824	
Sample Location		SD-468		SD-468		SD-469		SD-469	
Date Sampled		11/12/2001		11/12/2001		11/12/2001		11/12/2001	
Interval		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	Lobster Ingestion PRG	None		None		None		None	
Semivolatile Organic Analysis (UG/KG)									
2-Methylnaphthalene		1600	U	100	U	150	U	100	UJ
Acenaphthylene		1600	U	100	U	70	J	47	J
Benzo(a)anthracene	34270	660	J	180		460		160	J
Benzo(a)pyrene	9360	710	J	200		500		240	J
Benzo(b)fluoranthene	51269	1200	J	280		690		350	J
Dibenzo(a,h)anthracene	6742	1600	U	100	U	98	J	100	UJ
Indeno(1,2,3-cd)pyrene	72519	1600	U	160		350		170	J
Pesticide/PCB Analysis (UG/KG)									
Sum of PCB Congeners	175		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)									
Arsenic	5.48	9.9	J	10.0	J	11.1	J	14.7	J
Cadmium	10	0.058	U	0.89		0.051	U	0.037	U
Chromium	3708	46.9		49.1		50.6		55.8	
Mercury	2.3	0.50		0.89		0.41		0.64	


 - denotes exceedance of PRG

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number		OFF-1-SD-0015		OFF-2-SD-0015		OFF-3-SD-0015		OFF-4-SD-0015		OFF-5-SD-0015		OFF-5-SD-2025		OFF-5-SD-5560		OFF-6-SD-0015	
Sample Location		OFF-1		OFF-2		OFF-3		OFF-4		OFF-5		OFF-5		OFF-5		OFF-6	
Date Sampled		3/27/1998		3/27/1998		3/27/1998		3/27/1998		3/27/1998		4/27/1998		4/27/1998		3/27/1998	
Interval		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.7-0.8		1.8-2.0		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	26	J	77.6	J	89.2	J	38.1	J	330	J	42.5		3.6	U	170	J
Acenaphthylene	697	93		488		350		424		509		144		4.6	U	195	
Benzo(a)anthracene		100		3600		5690		2280		9300		882		8	U	4250	
Benzo(a)pyrene		595		2410		3450	J	2090		4830		973		3	U	1990	
Benzo(b)fluoranthene			NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	2434	441	J	1290	J	2810	J	352	J	3410	J	345		2.8	U	1390	J
Indeno(1,2,3-cd)pyrene	5633	1010		3070		6560	J	1200		7390		524		1.2	J	3030	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners		18.9		22.9		29.8		36.1		51.6		37		3.0		38.2	
TAL Metal Analysis (MG/KG)																	
Arsenic		6.3	J	8.0	J	3.6	J	4.3	J	3.6	J	4.9	J	5.3	J	4.1	J
Cadmium		0.31		0.14		0.18		0.060		0.23		0.55		1.29		0.15	
Chromium		31.1		36.6		26.5		24.3		27.4		17.6		29.5		23.0	
Mercury		0.371		0.081		0.050	U	0.050	U	0.050	U	0.071		0.050	U	0.050	U


 - denotes exceedance of PRG


 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 2 OF 14

Sample Number		OFF-6-SD-2025		OFF-6-SD-3540		OFF-7-SD-0015		OFF-8-SD-0015		OFF-9-SD-0015		OFF-10-SD-0015		OFF-10-SD-1520		OFF-10-SD-2530	
Sample Location		OFF-6		OFF-6		OFF-7		OFF-8		OFF-9		OFF-10		OFF-10		OFF-10	
Date Sampled		4/27/1998		4/27/1998		3/27/1998		4/7/1998		4/7/1998		4/3/1998		4/7/1998		4/7/1998	
Interval		0.7-0.8		1.1-1.3		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.5-0.7		0.8-1.0	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	280		9.6		54.9		14.4		3.1	J	3.1	J	3	J	2.6	J
Acenaphthylene	697	95.8		3.1	J	169		18.5		5.7		4.1	J	3	J	2.1	J
Benzo(a)anthracene		988		118		1160		214		57.3		35.2		23.4		15.5	
Benzo(a)pyrene		1750		116		1330		218		76.1		45.1		31.3		19.8	
Benzo(b)fluoranthene			NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	2434	357		22.3		293		41.5		13.6	U	8.6	J	6.6		4.8	
Indeno(1,2,3-cd)pyrene	5633	1140		72.2		968		136		48.1		35.3		26.9		14.8	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners		106.9		2.7		30.5		10.6		4.7		5.5		2.9		0.40	
TAL Metal Analysis (MG/KG)																	
Arsenic		7.5	J	3.7	J	6.8	J	4.3	J	4.3	J	3.4	J	2.9	J	3.3	J
Cadmium		0.68		0.14		0.29		0.19		0.11		0.15		0.18		0.070	
Chromium		35.3		29.7		43.1		42.3		38.6		32.1		30.1		39.2	
Mercury		0.176		0.050	U	0.119		0.148		0.050	U	0.070		0.070		0.073	


 - denotes exceedance of PRG


 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 3 OF 14

Sample Number		OFF-11-SD-0015		OFF-11-SD-5055		OFF-11-SD-105110		OFF-12-SD-0015		OFF-13-SD-0015		OFF-14-SD-0015		OFF-15-SD-0015		OFF-16-SD-0015	
Sample Location		OFF-11		OFF-11		OFF-11		OFF-12		OFF-13		OFF-14		OFF-15		OFF-16	
Date Sampled		4/3/1998		4/7/1998		4/7/1998		4/3/1998		4/3/1998		4/7/1998		4/7/1998		4/3/1998	
Interval		0.0-0.5		1.6-1.8		3.4-3.6		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	17.5	J	3.6	U	3.6	U	117	J	65.6	J	15.5		9.5		23.9	J
Acenaphthylene	697	9		1.1	J	4.6	U	58.3		156	J	25.2		11.9		35.8	J
Benzo(a)anthracene		168		44.7		8	U	1200		1160	J	216		106		195	J
Benzo(a)pyrene		148		37.5		3	U	1420		1150	J	255		103		220	J
Benzo(b)fluoranthene			NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	2434	23.9	J	4.8		0.8	J	280	J	213	J	52.2		44		49.6	J
Indeno(1,2,3-cd)pyrene	5633	86.3		23.1		1.5	J	777		646	J	172		116		156	J
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners		44.2		2.0		0.70		65.1		95.5		24.8		7.3		22.7	
TAL Metal Analysis (MG/KG)																	
Arsenic		2.7	J	5.0	J	4.7	J	5.2	J	6.0	J	8.5	J	3.7	J	5.0	J
Cadmium		0.22		0.27		0.20		0.53		0.80		0.12		0.18		0.36	
Chromium		30.2		32.1		231.7		58.6		73.7		44.9		41.0		48.0	
Mercury		0.125		0.050	U	0.051		0.376		1.355		0.196		0.10		0.208	


 - denotes exceedance of PRG

 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 4 OF 14

Sample Number		OFF-17-SD-0015		OFF-18-SD-0015		OFF-18-SD-5055		OFF-18-SD-105110		OFF-19-SD-0015		OFF-20-SD-0015		OFF-21-SD-0015		OFF-22-SD-0015	
Sample Location		OFF-17		OFF-18		OFF-18		OFF-18		OFF-19		OFF-20		OFF-21		OFF-22	
Date Sampled		4/3/1998		4/3/1998		4/7/1998		4/7/1998		4/7/1998		4/3/1998		4/3/1998		3/27/1998	
Interval		0.0-0.5		0.0-0.5		1.6-1.8		3.4-3.6		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	19.7	J	63.8	J	210		91.1		31.5		40.4	J	13.1	J	3.1	J
Acenaphthylene	697	41.1		141		210		80.2		40.6		14.8		18.3		4.4	J
Benzo(a)anthracene		251		730		787		1260		316		320		151		35.6	
Benzo(a)pyrene		333		964		931		1170		322		257		176		38.8	
Benzo(b)fluoranthene			NA		NA		NA		NA		NA		NA		NA		NA
Dibenzo(a,h)anthracene	2434	76.1	J	273	J	248		204		57.4		50.3	J	40.4	J	12.2	J
Indeno(1,2,3-cd)pyrene	5633	237		785		821		619		195		150		126		33.9	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners		16.6		62.9		46.8		12		28.4		18.9		15.6		2.8	
TAL Metal Analysis (MG/KG)																	
Arsenic		4.7	J	6.3	J	5.6	J	6.4	J	5.8	J	4.2	J	4.9	J	3.8	J
Cadmium		0.38		0.69		1.12		0.50		0.21		0.25		0.39		0.19	
Chromium		44.1		73.6		79.7		76.4		55.6		52.5		52.9		47.8	
Mercury		0.225		0.562		0.97		1.901		0.299		0.171		0.112		0.111	


 - denotes exceedance of PRG

 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 5 OF 14

Sample Number		OFF-23-SD-0015		OFF-SD-406-0006		OFF-SD-407-0006		OFF-SD-408-0006		OFF-SD-408-0006-D		OFF-SD-409-0006		OFF-SD-409-0006-D	
Sample Location		OFF-23		SD-406		SD-407		SD-408		SD-408		SD-409		SD-409	
Date Sampled		4/3/1998		11/12/2001		11/12/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		Field Dup. OFF-SD-408-0006		Field Dup. OFF-SD-408-0006		Field Dup. OFF-SD-409-0006		Field Dup. OFF-SD-409-0006	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	43.4		64	U	66	U	60	U	64	UJ	61	U	77	UJ
Acenaphthylene	697	77.5		64	U	66	U	60	U	64	UJ	61	U	77	UJ
Benzo(a)anthracene		616		64	U	66	U	85		110	J	58	J	110	J
Benzo(a)pyrene		758		64	U	66	U	90		130	J	69		120	J
Benzo(b)fluoranthene			NA	64	U	66	U	120		170	J	78		160	J
Dibenzo(a,h)anthracene	2434	179		64	U	66	U	60	U	64	UJ	61	U	77	UJ
Indeno(1,2,3-cd)pyrene	5633	511		64	U	66	U	74		100	J	61	U	77	UJ
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners		44.6		NA		NA		NA		NA		NA		NA	
TAL Metal Analysis (MG/KG)															
Arsenic		4.8	J	2.4		2.1		3.1	J	3.0	J	6.4	J	4.9	J
Cadmium		0.43		0.025	U	0.022	U	0.021	U	0.025	U	0.022	U	0.031	U
Chromium		53.2		10.8		11.4		11.3		13.6		11.2		15.4	
Mercury		0.387		0.032	J	0.038	J	0.029	J	0.035	J	0.030	J	0.073	


 - denotes exceedance of PRG


 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 6 OF 14

Sample Number		OFF-SD-410-0006		OFF-SD-415-0006		OFF-SD-416-0006		OFF-SD-418-0006		OFF-SD-419-0006		OFF-SD-419-0006-D		OFF-SD-420-0006		OFF-SD-421-0006	
Sample Location		SD-410		SD-415		SD-416		SD-418		SD-419		SD-419		SD-420		SD-421	
Date Sampled		11/14/2001		11/12/2001		11/14/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001	
Interval		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		None		Field Dup. OFF-SD-419-0006		Field Dup. OFF-SD-419-0006		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	470		62	U	61	U	120	U	130	U	140	U	280	U	260	U
Acenaphthylene	697	400		24	J	280		120	U	91	J	130	J	120	J	260	U
Benzo(a)anthracene		9200		120	J	1200		180		580		530		860		320	
Benzo(a)pyrene		9500		140	J	1400		160		470		540		850		340	
Benzo(b)fluoranthene		12000		160		1600		180		600		700		1000		420	
Dibenzo(a,h)anthracene	2434	1500		62	U	220		120	U	130	U	140	U	280	U	260	U
Indeno(1,2,3-cd)pyrene	5633	5200		91		860		80	J	200		200	J	310	J	150	J
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic		4.4	J	2.2		3.3	J	3.2	J	2.7	J	2.9	J	3.4	J	2.6	J
Cadmium		0.025	U	0.023	U	0.021	U	0.47	J	0.44	J	0.45	J	0.52	J	0.42	J
Chromium		17.5		10.6		10.8		11.3		11.8		12.4		14.6		12.7	
Mercury		0.060		0.049		0.037	J	0.053		0.057		0.061		0.085		0.078	


 - denotes exceedance of PRG


 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 7 OF 14

Sample Number		OFF-SD-422-0006		OFF-SD-423-0006		OFF-SD-426-0006		OFF-SD-427-1824		OFF-SD-427-1824-D		OFF-SD-427-0006		OFF-SD-428-0006	
Sample Location		SD-422		SD-423		SD-426		SD-427		SD-427		SD-427		SD-428	
Date Sampled		11/8/2001		11/8/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001		11/14/2001	
Interval		0.0-0.5		0.0-0.5		0.0-0.5		1.5-2.0		1.5-2.0		0.0-0.5		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		Field Dup. OFF-SD-427-1824		Field Dup. OFF-SD-427-1824		None		None	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	290	U	380	U	63	U	60	U	58	U	82	U	73	U
Acenaphthylene	697	210	J	380	U	63	U	60	U	58	U	82	U	64	J
Benzo(a)anthracene		1300		1600		63	U	60	U	58	U	82	U	580	
Benzo(a)pyrene		1000		1600		63	U	60	U	58	U	82	U	530	J
Benzo(b)fluoranthene		1200		2100		63	U	60	U	58	U	82	U	740	J
Dibenzo(a,h)anthracene	2434	290	U	380	U	63	U	60	U	58	U	82	U	73	UJ
Indeno(1,2,3-cd)pyrene	5633	500		560	J	63	U	60	U	58	U	82	U	200	J
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		3.5	J	6.9	J	2.8	J	2.4	J	2.0		2.6		4.5	J
Cadmium		0.57	J	1.1	J	0.024	UJ	0.022	U	0.021	U	0.029	U	0.030	UJ
Chromium		15.9		27.5		10.2		13.5		13.7		14.0		15.6	
Mercury		0.096		0.23		0.025	J	0.026	J	0.027		0.041	J	0.059	


 - denotes exceedance of PRG

 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 8 OF 14

Sample Number		OFF-SD-428-1824		OFF-SD-429-0006		OFF-SD-430-0006		OFF-SD-430-1824		OFF-SD-431-0006		OFF-SD-431-1824		OFF-SD-433-0006		OFF-SD-433-1824	
Sample Location		SD-428		SD-429		SD-430		SD-430		SD-431		SD-431		SD-433		SD-433	
Date Sampled		11/14/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001	
Interval		1.5-2.0		0.0-0.5		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	60	U	65	U	63	U	61	U	62	U	58	U	68	U	61	U
Acenaphthylene	697	47	J	65	U	63	U	61	U	62	U	58	U	68	U	61	U
Benzo(a)anthracene		370		65	U	63	U	61	U	62	U	58	U	68	U	61	U
Benzo(a)pyrene		320	J	65	U	63	U	61	U	62	U	58	U	68	U	61	U
Benzo(b)fluoranthene		420	J	65	U	63	U	61	U	62	U	58	U	37	J	61	U
Dibenzo(a,h)anthracene	2434	60	UJ	65	U	63	U	61	U	62	U	58	U	68	U	61	U
Indeno(1,2,3-cd)pyrene	5633	120	J	65	U	63	U	61	U	62	U	58	U	68	U	61	U
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic		3.1	J	4.7	J	2.6	J	4.5	J	1.4	J	3.2	J	2.2	J	5.4	J
Cadmium		0.023	UJ	0.024	U	0.026	U	0.022	U	0.024	U	0.023	U	0.025	U	0.022	U
Chromium		11.8		17.6		11.6		14.8		12.3		14.8		11.9		12.2	
Mercury		0.096		0.070		0.061		0.032	J	0.040	J	0.033	J	0.053		0.019	U


 - denotes exceedance of PRG


 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 9 OF 14

Sample Number		OFF-SD-434-0006		OFF-SD-434-0006-D		OFF-SD-434-1824		OFF-SD-435-0006		OFF-SD-435-1824		OFF-SD-436-0006		OFF-SD-436-0006-D	
Sample Location		SD-434		SD-434		SD-434		SD-435		SD-435		SD-436		SD-436	
Date Sampled		11/14/2001		11/14/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001	
Interval		0.0-0.5		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		0.0-0.5	
QC Identifier	Ecological PRG	Field Dup. OFF-SD-434-0006		Field Dup. OFF-SD-434-0006		None		None		None		Field Dup. OFF-SD-436-0006		Field Dup. OFF-SD-436-0006	
Semivolatile Organic Analysis (UG/KG)															
2-Methylnaphthalene	185	65	U	67	U	62	U	72	U	60	U	64	U	65	U
Acenaphthylene	697	93		51	J	94		72	U	60	U	210		210	
Benzo(a)anthracene		400		330		540		72	U	60	U	980		1200	
Benzo(a)pyrene		340	J	280	J	460		32	J	60	U	850		1000	
Benzo(b)fluoranthene		440	J	360	J	570		48	J	60	U	1000		1300	
Dibenzo(a,h)anthracene	2434	65	UJ	67	UJ	60	J	72	U	60	U	140		170	
Indeno(1,2,3-cd)pyrene	5633	120	J	94	J	190		27	J	60	U	540		610	
Pesticide/PCB Analysis (UG/KG)															
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)															
Arsenic		3.6	J	3.4	J	3.3	J	2.5	J	2.3	J	6.0	J	3.9	
Cadmium		0.026	UJ	0.026	UJ	0.023	UJ	0.027	U	0.020	U	0.022	U	0.025	U
Chromium		11.8		12.1		11.1		14.1		11.1		11.8		10.8	
Mercury		0.030	J	0.036	J	0.033	J	0.050		0.018	U	0.023	J	0.027	


 - denotes exceedance of PRG


 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 10 OF 14

Sample Number		OFF-SD-436-1824		OFF-SD-437-0006		OFF-SD-437-1824		OFF-SD-438-0006		OFF-SD-438-1824		OFF-SD-440-0006		OFF-SD-440-1824		OFF-SD-441-0006	
Sample Location		SD-436		SD-437		SD-437		SD-438		SD-438		SD-440		SD-440		SD-441	
Date Sampled		11/12/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001	
Interval		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	26	J	140	U	120	U	130	U	120	U	120	U	120	U	630	U
Acenaphthylene	697	280		140	U	120	U	150		120	U	140		120	U	630	U
Benzo(a)anthracene		1200		140		120	U	770		120	U	580		120	U	600	J
Benzo(a)pyrene		1100		130	J	120	U	740		120	U	580		120	U	570	J
Benzo(b)fluoranthene		1300		160		120	U	880		120	U	660		120	U	670	
Dibenzo(a,h)anthracene	2434	160		140	U	120	U	130	U	120	U	120	U	120	U	630	U
Indeno(1,2,3-cd)pyrene	5633	680		62	J	120	U	280	J	120	U	270		120	U	310	J
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic		5.5	J	3.4	J	2.3	J	4.1	J	1.9	J	2.6	J	1.8	J	1.7	J
Cadmium		0.024	U	0.40	J	0.34	J	0.43	J	0.27	J	0.41	J	0.25	J	0.37	J
Chromium		14.9		11.6		9.4		11.7		11.4		11.2		8.2		10.3	
Mercury		0.047		0.057		0.019	U	0.045		0.019	U	0.066		0.018	U	0.060	


 - denotes exceedance of PRG


 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 11 OF 14

Sample Number		OFF-SD-441-1824		OFF-SD-443-0006		OFF-SD-443-1824		OFF-SD-444-0006		OFF-SD-444-1824		OFF-SD-446-0006		OFF-SD-446-1824		OFF-SD-460-0006	
Sample Location		SD-441		SD-443		SD-443		SD-444		SD-444		SD-446		SD-446		SD-460	
Date Sampled		11/8/2001		11/13/2001		11/13/2001		11/8/2001		11/8/2001		11/8/2001		11/8/2001		11/14/2001	
Interval		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	160	U	67	U	67	U	130	U	77	J	300	U	53	J	65	U
Acenaphthylene	697	160	U	110		67	U	100	J	140	U	330		58	J	65	U
Benzo(a)anthracene		180		670		58	J	530		960		2300		590		120	
Benzo(a)pyrene		170		550		43	J	540		860		2500		700	J	140	
Benzo(b)fluoranthene		180		690		53	J	680		950		3100		920	J	200	
Dibenzo(a,h)anthracene	2434	160	U	67	U	67	U	130	U	140	U	270	J	150	UJ	65	U
Indeno(1,2,3-cd)pyrene	5633	85	J	180		67	U	220	J	290	J	1000	J	290	J	110	
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic		4.5	J	3.1	J	3.4	J	2.1	J	3.7	J	4.2	J	7.9	J	3.9	J
Cadmium		0.73	J	1.1	J	0.79	J	0.41	J	0.55	J	0.59	J	1.2	J	0.024	U
Chromium		18.2		9.0	J	9.0		12.0		14.6		17.2		25.6		14.0	
Mercury		0.41		0.091		0.022	U	0.065		0.20		0.11		0.33		0.047	J


 - denotes exceedance of PRG


 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 12 OF 14

Sample Number		OFF-SD-460-1824		OFF-SD-461-0006		OFF-SD-461-1824		OFF-SD-462-0006		OFF-SD-462-1824		OFF-SD-463-0006		OFF-SD-463-1824		OFF-SD-464-0006	
Sample Location		SD-460		SD-461		SD-461		SD-462		SD-462		SD-463		SD-463		SD-464	
Date Sampled		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	62	U	67	U	55	U	68	U	60	U	61	U	59	U	70	U
Acenaphthylene	697	62	U	67	U	55	U	68	U	60	U	61	U	59	U	70	U
Benzo(a)anthracene		29	J	67	U	55	U	110		60	U	61	U	59	U	34	J
Benzo(a)pyrene		40	J	46	J	55	U	130		60	U	61	U	59	U	70	U
Benzo(b)fluoranthene		42	J	56	J	55	U	160		60	U	61	U	59	U	70	U
Dibenzo(a,h)anthracene	2434	62	U	67	U	55	U	68	U	60	U	61	U	59	U	70	U
Indeno(1,2,3-cd)pyrene	5633	62	U	67	U	55	U	98		60	U	61	U	59	U	70	U
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic		3.6	J	3.0	J	5.4	J	3.4	J	4.8	J		NA	2.3	J	3.8	J
Cadmium		0.023	U	0.026	U	0.021	U	0.026	U	0.023	U		NA	0.024	UJ	0.028	U
Chromium		14.7		15.2		11.9		14.0		13.2			NA	10.6		14.5	
Mercury		0.032	J	0.047	J	0.015	U	0.028	J	0.019	U		NA	0.016	U	0.069	


 - denotes exceedance of PRG

 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 13 OF 14

Sample Number		OFF-SD-464-1824		OFF-SD-465-0006		OFF-SD-465-1824		OFF-SD-466-0006		OFF-SD-466-1824		OFF-SD-467-0006		OFF-SD-467-1824		OFF-SD-468-0006	
Sample Location		SD-464		SD-465		SD-465		SD-466		SD-466		SD-467		SD-467		SD-468	
Date Sampled		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/12/2001	
Interval		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5	
QC Identifier	Ecological PRG	None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																	
2-Methylnaphthalene	185	56	U	63	U	58	U	62	U	63	U	69	U	61	U	1600	U
Acenaphthylene	697	56	U	63	U	58	U	74	J	63	U	69	U	61	U	1600	U
Benzo(a)anthracene		56	U	32	J	26	J	420	J	280		63	J	61	U	660	J
Benzo(a)pyrene		56	U	63	UJ	58	U	370		420		53	J	61	U	710	J
Benzo(b)fluoranthene		56	U	63	UJ	24	J	450		450		74		61	U	1200	J
Dibenzo(a,h)anthracene	2434	56	U	63	UJ	58	U	62	U	62	J	69	U	61	U	1600	U
Indeno(1,2,3-cd)pyrene	5633	56	U	63	UJ	58	U	150	J	210		69	U	61	U	1600	U
Pesticide/PCB Analysis (UG/KG)																	
Sum of PCB Congeners			NA		NA		NA		NA		NA		NA		NA		NA
TAL Metal Analysis (MG/KG)																	
Arsenic		4.6	J	2.2	J	4.4	J	2.2	J	3.0	J	2.2	J	6.3	J	9.9	J
Cadmium		0.021	U	0.024	UJ	0.021	UJ	0.025	UJ	0.025	UJ	0.024	UJ	0.022	UJ	0.058	U
Chromium		14.5		9.9		9.7		7.0		12.8		11.2		13.1		46.9	
Mercury		0.017	U	0.050		0.020	U	0.023	J	0.093		0.032	J	0.043		0.50	


 - denotes exceedance of PRG

 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
 * - From dilution analysis; R - Rejected; NA - Not Analyzed

TABLE 4-3 (cont.)
CONTAMINANTS EXCEEDING PRGs
ECOLOGICAL EXPOSURES
TECHNICAL MEMORANDUM - SEDIMENT PREDESIGN INVESTIGATIONS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND
PAGE 14 OF 14

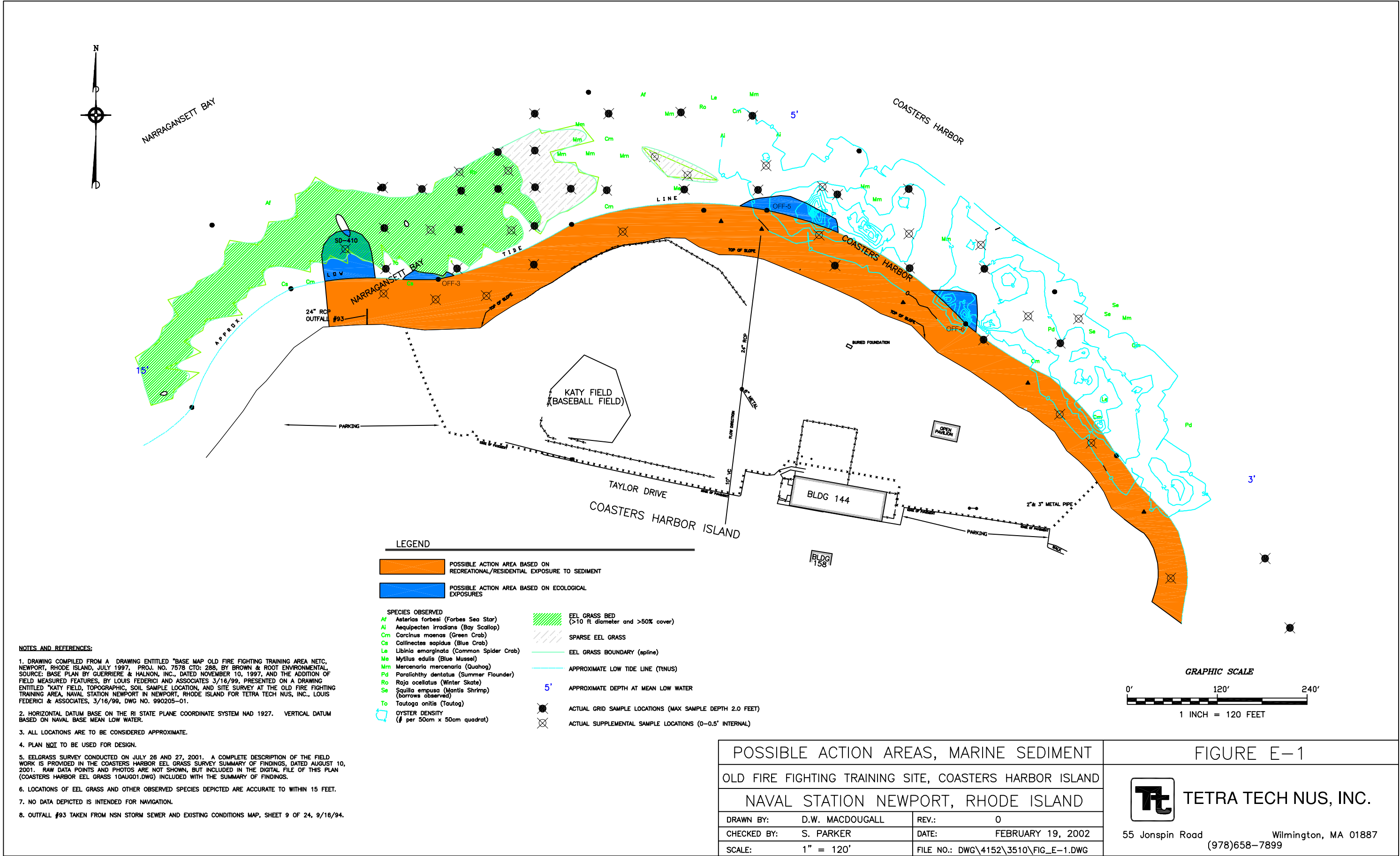
Sample Number		OFF-SD-468-1824		OFF-SD-469-0006		OFF-SD-469-1824	
Sample Location		SD-468		SD-469		SD-469	
Date Sampled		11/12/2001		11/12/2001		11/12/2001	
Interval		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	Ecological PRG	None		None		None	
Semivolatile Organic Analysis (UG/KG)							
2-Methylnaphthalene	185	100	U	150	U	100	UJ
Acenaphthylene	697	100	U	70	J	47	J
Benzo(a)anthracene		180		460		160	J
Benzo(a)pyrene		200		500		240	J
Benzo(b)fluoranthene		280		690		350	J
Dibenzo(a,h)anthracene	2434	100	U	98	J	100	UJ
Indeno(1,2,3-cd)pyrene	5633	160		350		170	J
Pesticide/PCB Analysis (UG/KG)							
Sum of PCB Congeners			NA		NA		NA
TAL Metal Analysis (MG/KG)							
Arsenic		10.0	J	11.1	J	14.7	J
Cadmium		0.89		0.051	U	0.037	U
Chromium		49.1		50.6		55.8	
Mercury		0.89		0.41		0.64	

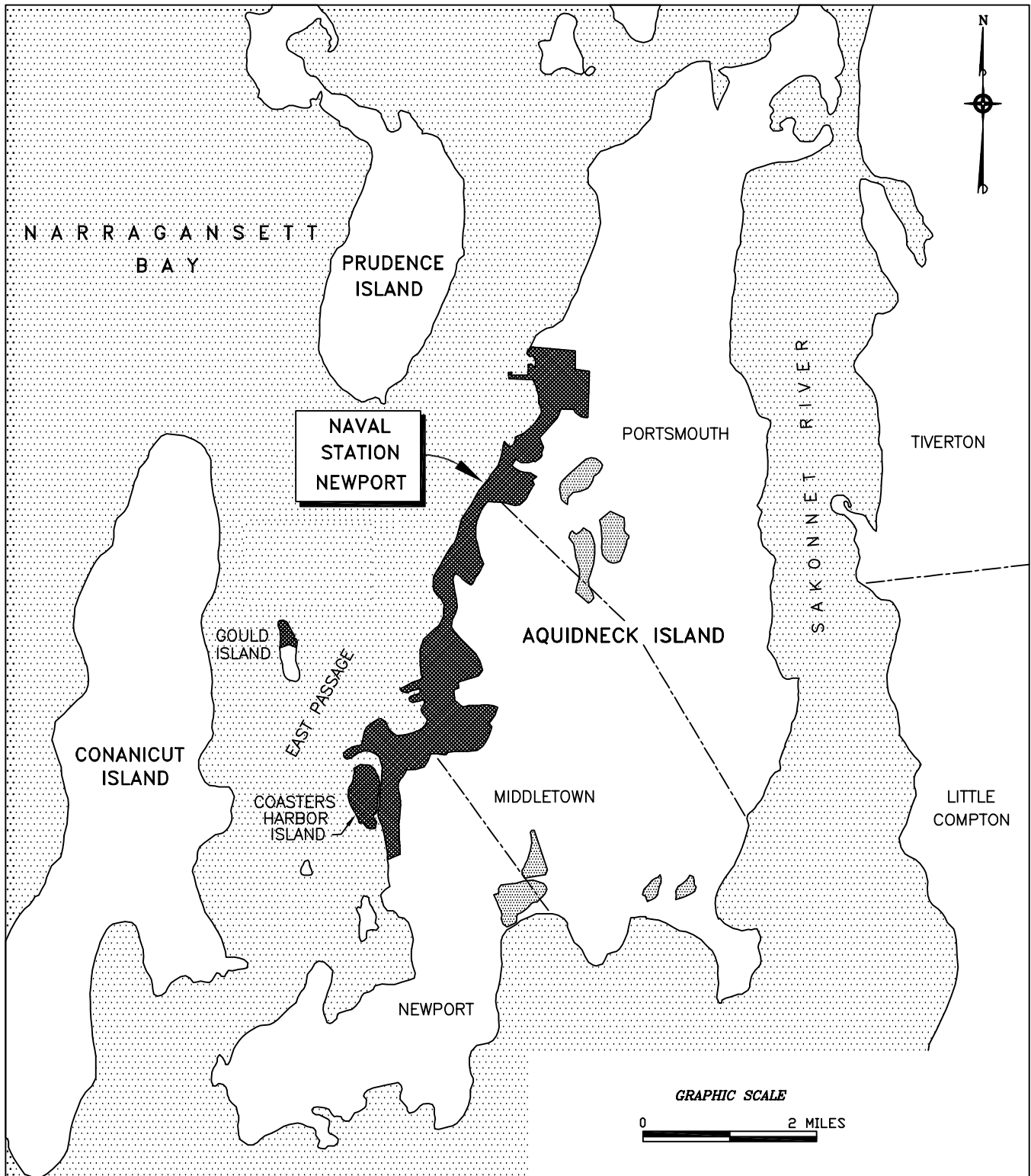
 - denotes exceedance of PRG

 - denotes detection limit above PRG value

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

FIGURES





SITE LOCUS

OLD FIRE FIGHTING TRAINING AREA

NAVSTA NEWPORT – NEWPORT, RHODE ISLAND

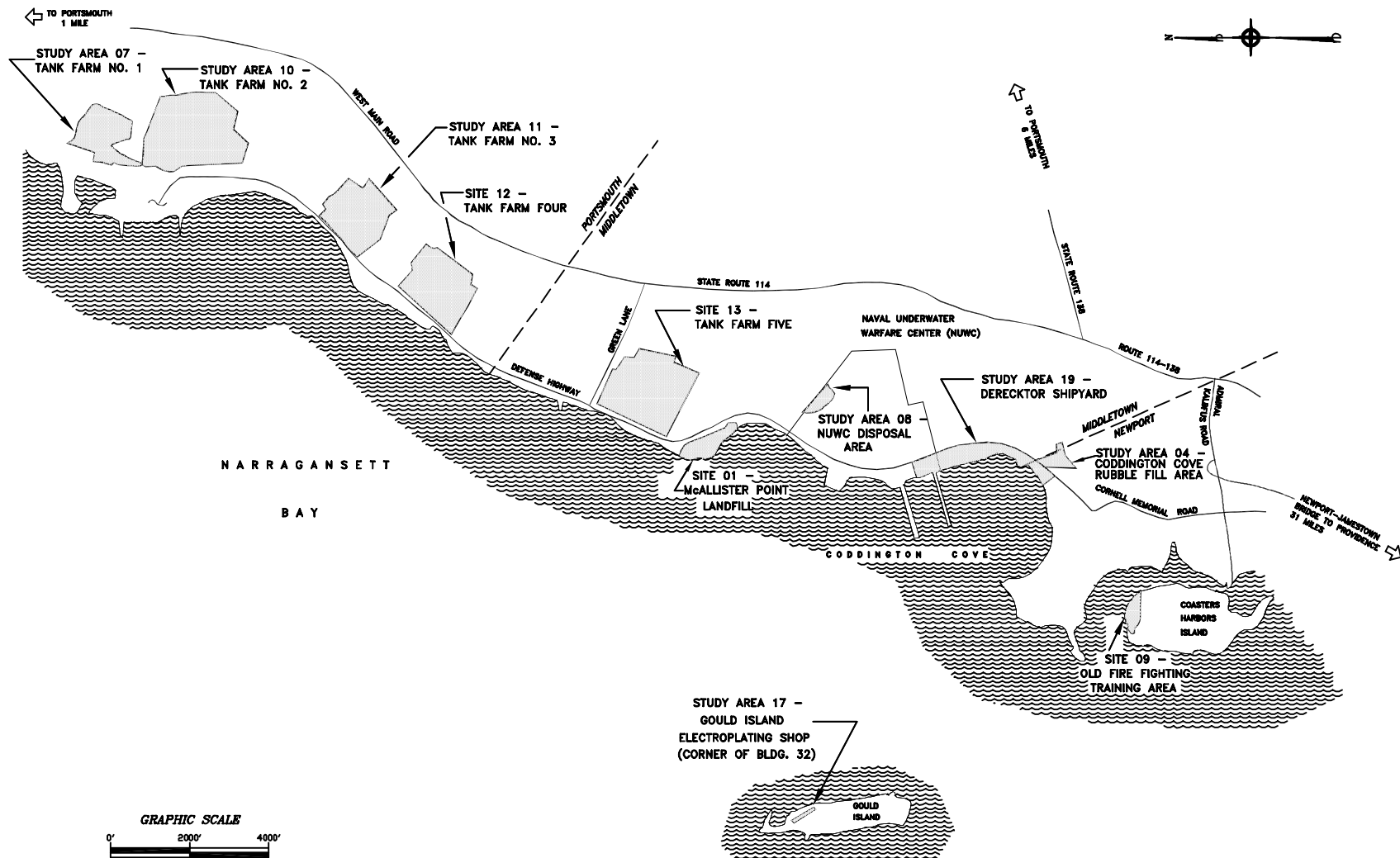
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CHECKED BY:	S. PARKER	DATE:	FEBRUARY 5, 2002
SCALE:	AS NOTED	ACAD NAME:	DWG\4152\3510\FIG_2-1.DWG


FIGURE 2-1




TETRA TECH NUS, INC.

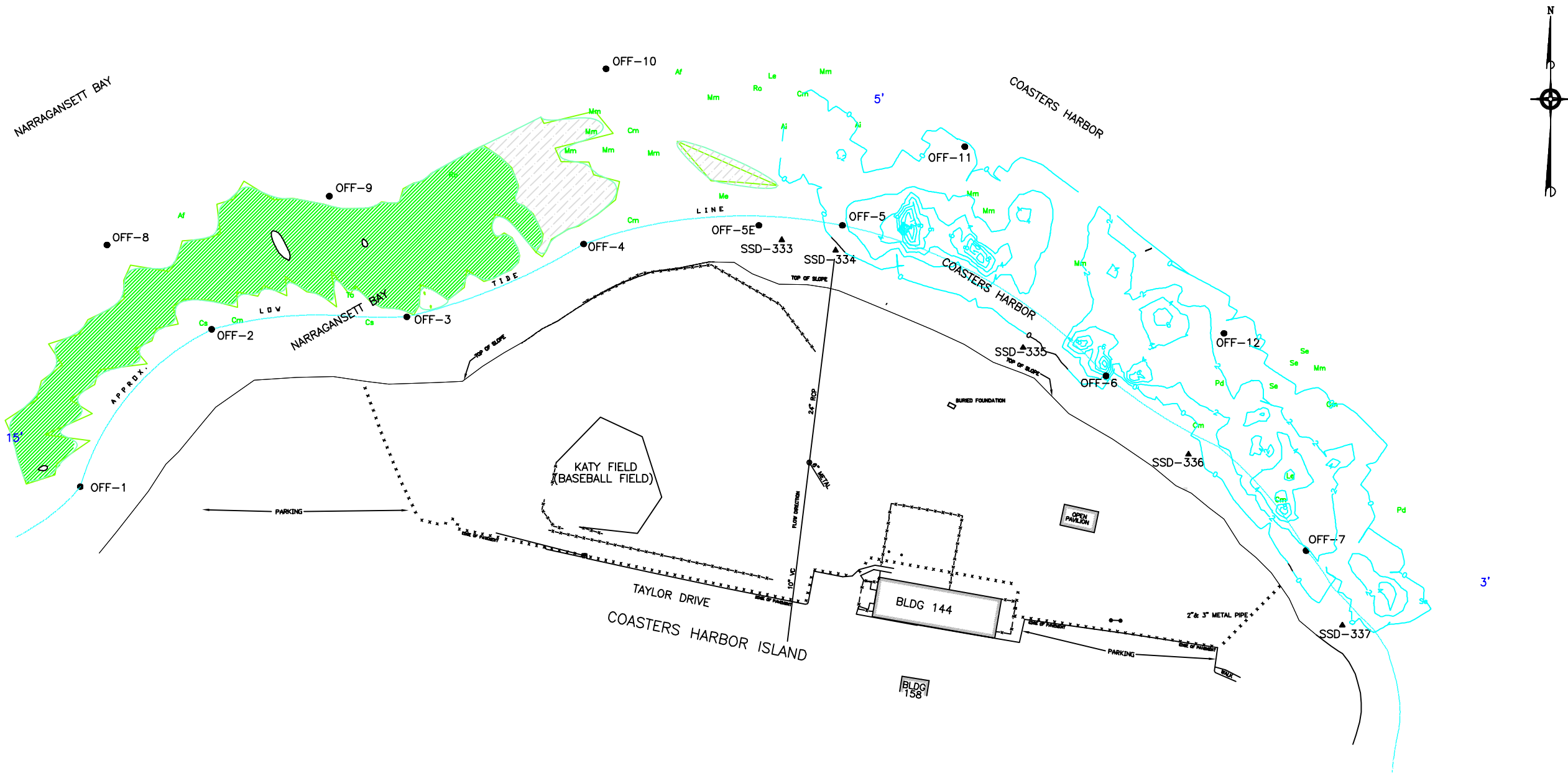
55 Jonspin Road
Wilmington, MA 01887
(978)658-7899



NEWPORT SITES AND STUDY AREAS			FIGURE 2-2	
OLD FIRE FIGHTING TRAINING AREA			<div>TETRA TECH NUS, INC.</div> <div>55 Jonspin RoadWilmington, MA 01887(978)658-7899</div>	
NAVSTA NEWPORT – NEWPORT, RHODE ISLAND				
DRAWN BY:	D.W. MACDOUGALL	REV.:	0	
CHECKED BY:	S. PARKER	DATE:	JANAURY 31, 2001	
SCALE:	AS NOTED	FILE NO.:	DWG\4152\3510\FIG_2-2.DWG	



SITE & REFERENCE COLLECTION STATIONS			FIGURE 2-3		
MARINE ECOLOGICAL RISK ASSESSMENT			<div>TETRA TECH NUS, INC.</div> <div>55 Jonspin Road Wilmington, MA 01887 (978)658-7899</div>		
OLD FIRE FIGHTING TRAINING AREA – NAVAL STATION – NEWPORT, RI					
DRAWN BY:	D.W. MACDOUGALL	REV.:			0
CHECKED BY:	S. PARKER	DATE:			FEBRUARY 5, 2002
SCALE:	1" = 600'	FILE NO.:			DWG\4152\3510\FIG_2-3.DWG

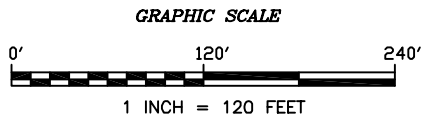


NOTES AND REFERENCES:

1. DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 288, BY BROWN & ROOT ENVIRONMENTAL, SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/16/99, PRESENTED ON A DRAWING ENTITLED "KATY FIELD, TOPOGRAPHIC, SOIL, SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA, NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/16/99, DWG NO. 990205-01.
2. HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1927. VERTICAL DATUM BASED ON NAVAL BASE MEAN LOW WATER.
3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.
4. PLAN NOT TO BE USED FOR DESIGN.
5. EELGRASS SURVEY CONDUCTED ON JULY 26 AND 27, 2001. A COMPLETE DESCRIPTION OF THE FIELD WORK IS PROVIDED IN THE COASTERS HARBOR EEL GRASS SURVEY SUMMARY OF FINDINGS, DATED AUGUST 10, 2001. RAW DATA POINTS AND PHOTOS ARE NOT SHOWN, BUT INCLUDED IN THE DIGITAL FILE OF THIS PLAN (COASTERS HARBOR EEL GRASS 10AUG01.DWG) INCLUDED WITH THE SUMMARY OF FINDINGS.
6. LOCATIONS OF EEL GRASS AND OTHER OBSERVED SPECIES DEPICTED ARE ACCURATE TO WITHIN 15 FEET.
7. NO DATA DEPICTED IS INTENDED FOR NAVIGATION.

LEGEND

- SPECIES OBSERVED**
- Af Asterias forbesi (Forbes Sea Star)
 - Ai Aequipecten irradians (Bay Scallop)
 - Cm Carcinus maenas (Green Crab)
 - Cs Callinectes sapidus (Blue Crab)
 - Le Libinia emarginata (Common Spider Crab)
 - Me Mytilus edulis (Blue Mussel)
 - Mm Mercenaria mercenaria (Quahog)
 - Pd Paralichthys dentatus (Summer Flounder)
 - Ro Raja ocellatus (Winter Skate)
 - Se Squilla empusa (Mantis Shrimp)
 - To Tautoga onitis (Tautog)
- EEL GRASS BED** (>10 ft diameter and >50% cover)
- SPARSE EEL GRASS**
- EEL GRASS BOUNDARY (spine)**
- APPROXIMATE LOW TIDE LINE (TINUS)**
- 5'** APPROXIMATE DEPTH AT MEAN LOW WATER
- OYSTER DENSITY** (# per 50cm x 50cm quadrat)

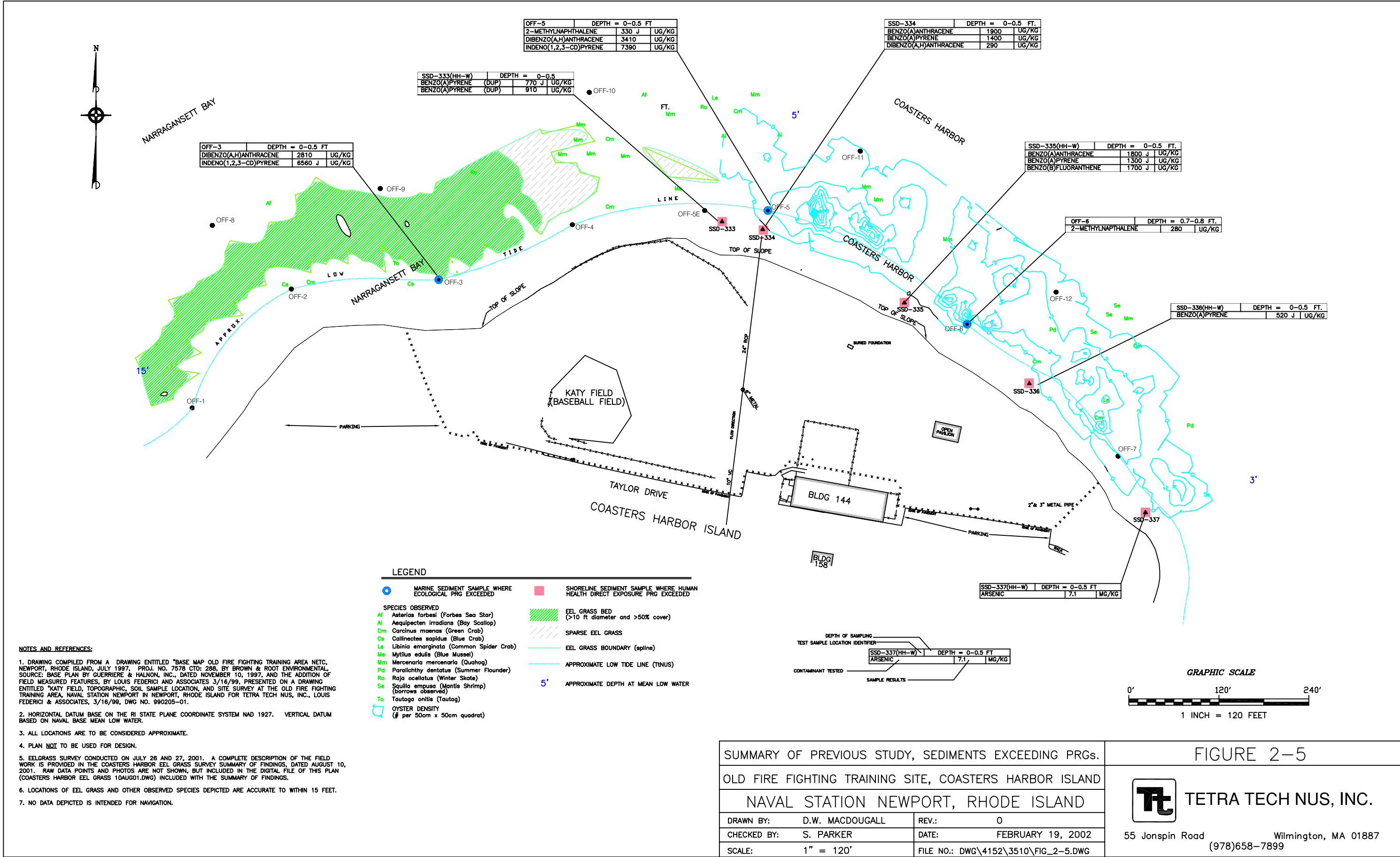


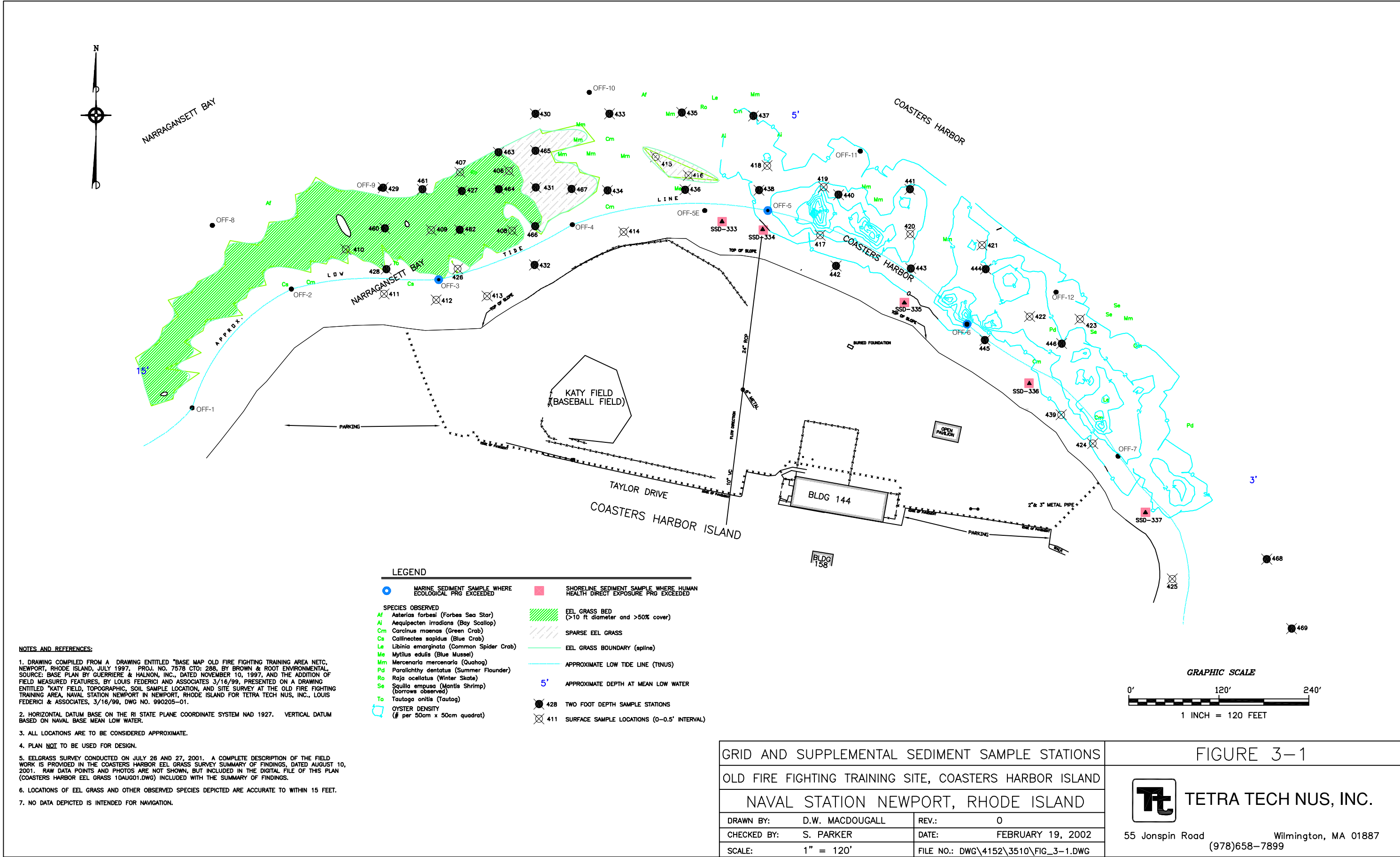
SUBTIDAL HABITAT SURVEY RESULTS			
OLD FIRE FIGHTING TRAINING SITE, COASTERS HARBOR ISLAND			
NAVAL STATION NEWPORT, RHODE ISLAND			
DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	S. PARKER	DATE:	FEBRUARY 19, 2002
SCALE:	1" = 120'	FILE NO.:	DWG\4152\3510\FIG_2-4.DWG

FIGURE 2-4



55 Jonspin Road Wilmington, MA 01887
(978)658-7899





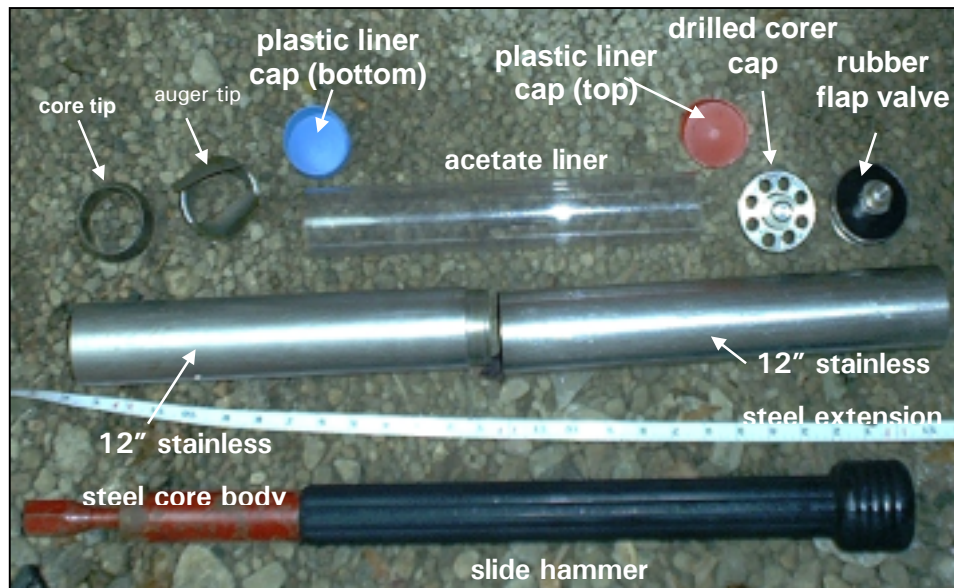
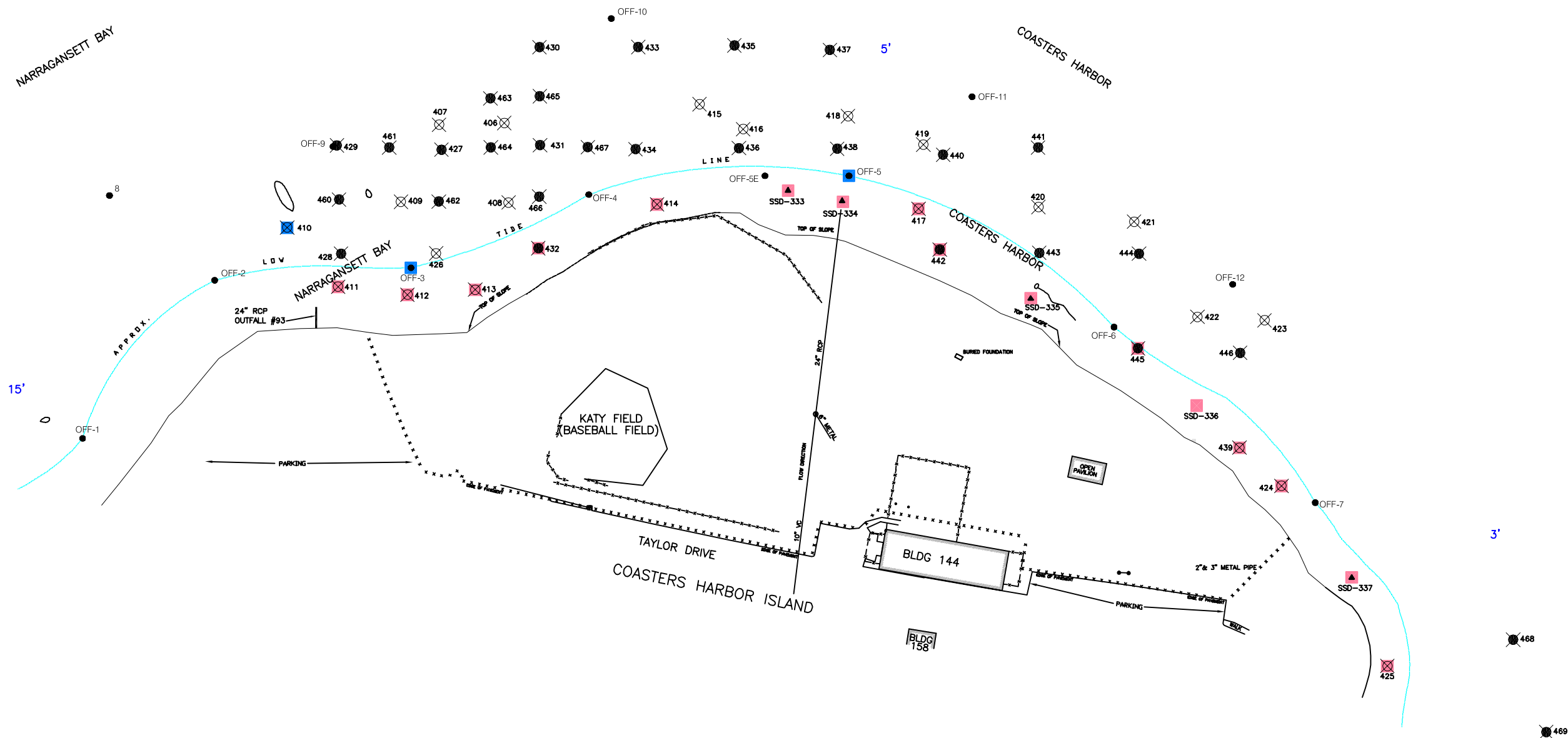


Figure 3-2 Core sampler components (*Pare Engineering, Lincoln RI*)



NARRAGANSETT BAY

COASTERS HARBOR



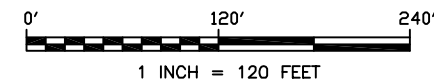
NOTES AND REFERENCES:

1. DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 288, BY BROWN & ROOT ENVIRONMENTAL, SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/16/99, PRESENTED ON A DRAWING ENTITLED "KATY FIELD, TOPOGRAPHIC, SOIL, SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA, NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/16/99, DWG NO. 990205-01.
2. HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1927. VERTICAL DATUM BASED ON NAVAL BASE MEAN LOW WATER.
3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.
4. PLAN NOT TO BE USED FOR DESIGN.
5. EELGRASS SURVEY CONDUCTED ON JULY 26 AND 27, 2001. A COMPLETE DESCRIPTION OF THE FIELD WORK IS PROVIDED IN THE COASTERS HARBOR EEL GRASS SURVEY SUMMARY OF FINDINGS, DATED AUGUST 10, 2001. RAW DATA POINTS AND PHOTOS ARE NOT SHOWN, BUT INCLUDED IN THE DIGITAL FILE OF THIS PLAN (COASTERS HARBOR EEL GRASS 10AUG01.DWG) INCLUDED WITH THE SUMMARY OF FINDINGS.
6. LOCATIONS OF EEL GRASS AND OTHER OBSERVED SPECIES DEPICTED ARE ACCURATE TO WITHIN 15 FEET.
7. NO DATA DEPICTED IS INTENDED FOR NAVIGATION.
8. OUTFALL #93 TAKEN FROM NSN STORM SEWER AND EXISTING CONDITIONS MAP, SHEET 9 OF 24, 9/16/94.

LEGEND

- SHORELINE SEDIMENT SAMPLE WHERE HUMAN HEALTH DIRECT EXPOSURE PRG EXCEEDED
- MARINE SEDIMENT SAMPLE WHERE ECOLOGICAL PRG EXCEEDED
- APPROXIMATE LOW TIDE LINE (TLNUS)
- 5' APPROXIMATE DEPTH AT MEAN LOW WATER
- ✗ 432 ✗ 411 SHORELINE SAMPLE STATIONS EXCEEDING PRGs FOR RESIDENTIAL/RECREATIONAL EXPOSURE TO SEDIMENT
- ✗ 410 ✗ 410 NEARSHORE AND OFFSHORE SAMPLE STATIONS EXCEEDING ECOLOGICAL PRGs
- ✗ 446 ✗ 424 SAMPLE STATIONS WHERE PRGs NOT EXCEEDED

GRAPHIC SCALE



1 INCH = 120 FEET

LOCATIONS WHERE SEDIMENTS EXCEED PRGs

OLD FIRE FIGHTING TRAINING SITE, COASTERS HARBOR ISLAND

NAVAL STATION NEWPORT, RHODE ISLAND

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	S. PARKER	DATE:	FEBRUARY 19, 2002
SCALE:	1" = 120'	FILE NO.:	DWG\4152\3510\FIG_4-1.DWG

FIGURE 4-1

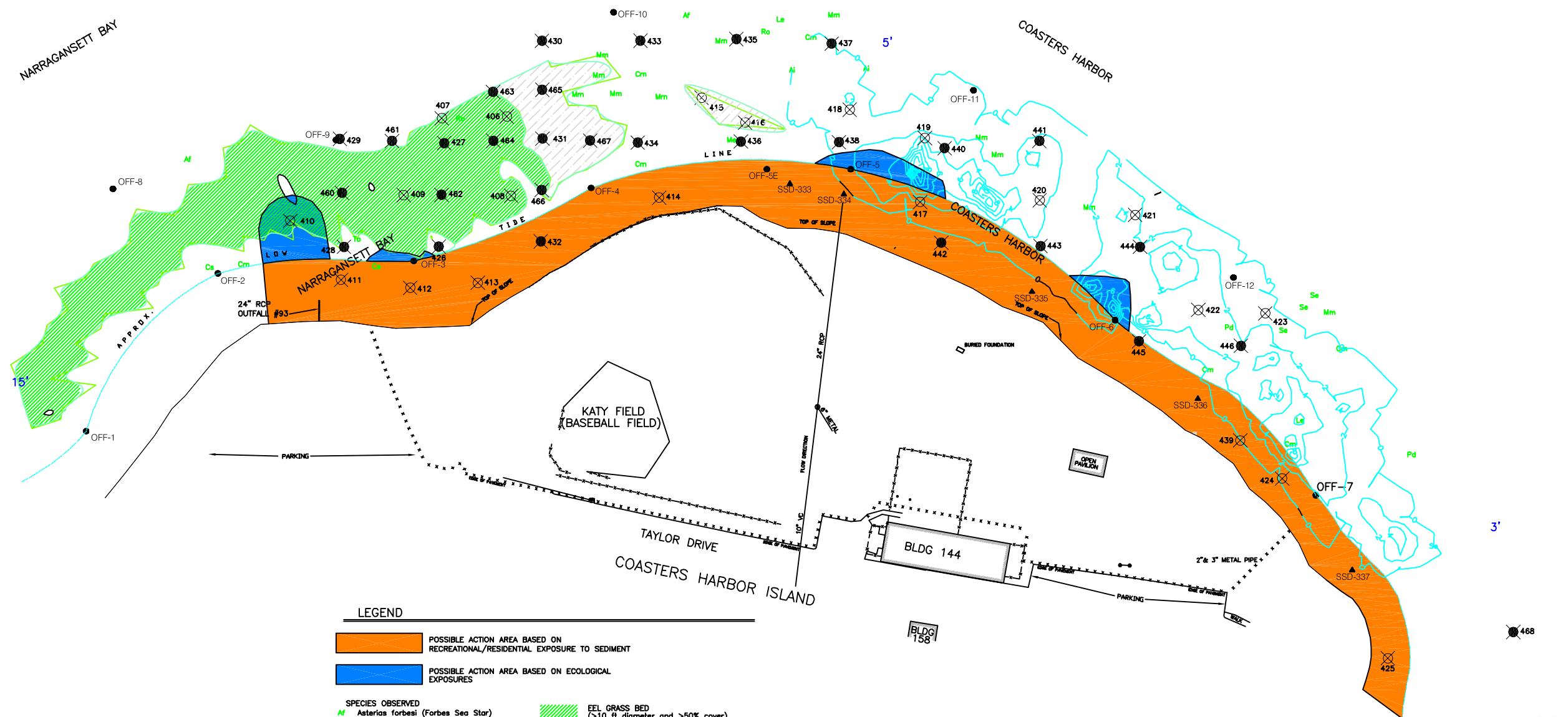


TETRA TECH NUS, INC.

55 Jonspin Road Wilmington, MA 01887
(978)658-7899



NARRAGANSETT BAY



LEGEND

- POSSIBLE ACTION AREA BASED ON RECREATIONAL/RESIDENTIAL EXPOSURE TO SEDIMENT
- POSSIBLE ACTION AREA BASED ON ECOLOGICAL EXPOSURES

SPECIES OBSERVED

- Af Asterias forbesi (Forbes Sea Star)
- Al Aequipecten irradians (Bay Scallop)
- Cm Carcinus maenas (Green Crab)
- Cs Callinectes sapidus (Blue Crab)
- Le Libinia emarginata (Common Spider Crab)
- Me Mytilus edulis (Blue Mussel)
- Mm Mercenaria mercenaria (Quahog)
- Pd Paralichthys dentatus (Summer Flounder)
- Ro Raja ocellatus (Winter Skate)
- Se Squilla empusa (Mantis Shrimp)
- To Tautoga onitis (Tautog)

- EEL GRASS BED (>10 ft diameter and >50% cover)
- SPARSE EEL GRASS
- EEL GRASS BOUNDARY (spline)
- APPROXIMATE LOW TIDE LINE (TINUS)

5' APPROXIMATE DEPTH AT MEAN LOW WATER

- 436 ACTUAL GRID SAMPLE LOCATIONS (MAX SAMPLE DEPTH 2.0 FEET)
- 445 ACTUAL SUPPLEMENTAL SAMPLE LOCATIONS (0-0.5' INTERNAL)

OYSTER DENSITY (# per 50cm x 50cm quadrat)

NOTES AND REFERENCES:

- DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 288, BY BROWN & ROOT ENVIRONMENTAL, SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/16/99, PRESENTED ON A DRAWING ENTITLED "KATY FIELD, TOPOGRAPHIC, SOIL SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA, NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/16/99, DWG NO. 990205-01.
- HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1927. VERTICAL DATUM BASED ON NAVAL BASE MEAN LOW WATER.
- ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.
- PLAN NOT TO BE USED FOR DESIGN.
- EELGRASS SURVEY CONDUCTED ON JULY 26 AND 27, 2001. A COMPLETE DESCRIPTION OF THE FIELD WORK IS PROVIDED IN THE COASTERS HARBOR EEL GRASS SURVEY SUMMARY OF FINDINGS, DATED AUGUST 10, 2001. RAW DATA POINTS AND PHOTOS ARE NOT SHOWN, BUT INCLUDED IN THE DIGITAL FILE OF THIS PLAN (COASTERS HARBOR EEL GRASS 10AUG01.DWG) INCLUDED WITH THE SUMMARY OF FINDINGS.
- LOCATIONS OF EEL GRASS AND OTHER OBSERVED SPECIES DEPICTED ARE ACCURATE TO WITHIN 15 FEET.
- NO DATA DEPICTED IS INTENDED FOR NAVIGATION.
- OUTFALL #93 TAKEN FROM NSN STORM SEWER AND EXISTING CONDITIONS MAP, SHEET 9 OF 24, 9/16/94.

POSSIBLE ACTION AREAS, MARINE SEDIMENT

OLD FIRE FIGHTING TRAINING SITE, COASTERS HARBOR ISLAND

NAVAL STATION NEWPORT, RHODE ISLAND

DRAWN BY: D.W. MACDOUGALL

REV.: 0

CHECKED BY: S. PARKER

DATE: FEBRUARY 19, 2002

SCALE: 1" = 120'

FILE NO.: DWG\4152\3510\FIG_4-2.DWG

GRAPHIC SCALE

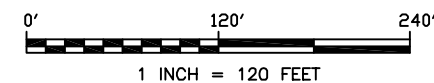


FIGURE 4-2



TETRA TECH NUS, INC.

55 Jonspin Road Wilmington, MA 01887
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APPENDIX A

RESULTS FROM ANALYSIS OF SAMPLES COLLECTED, NOVEMBER 2001

ANALYTICAL RESULTS
BLANK SAMPLES
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-499-RB01		OFF-SD-499-RB02	
Sample Location	SD-499		SD-499	
Date Sampled	10/29/2001		10/29/2001	
Interval	0.0-0.0		0.0-0.0	
QC Identifier	Rinsate Blank		Rinsate Blank	
Semivolatile Organic Analysis (UG/L)				
2-Methylnaphthalene	10	U	10	U
Acenaphthene	10	U	10	U
Acenaphthylene	10	U	10	U
Anthracene	10	U	10	U
Benzo(a)anthracene	10	U	10	U
Benzo(a)pyrene	10	U	10	U
Benzo(b)fluoranthene	10	U	10	U
Benzo(g,h,i)perylene	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U
Chrysene	10	U	10	U
Dibenzo(a,h)anthracene	10	U	10	U
Dibenzofuran	10	U	10	U
Fluoranthene	10	U	10	U
Fluorene	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U
Naphthalene	10	U	10	U
Phenanthrene	10	U	10	U
Pyrene	10	U	10	U

ANALYTICAL RESULTS
BLANK SAMPLES
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-499-RB01	OFF-SD-499-RB02	
Sample Location	SD-499	SD-499	
Date Sampled	10/29/2001	10/29/2001	
Interval	0.0-0.0	0.0-0.0	
QC Identifier	Rinsate Blank	Rinsate Blank	
TAL Metal Analysis (UG/L)			
Aluminum	24.0	8.0	U
Antimony	1.1 J	1.0	U
Arsenic	2.0 U	2.0	U
Barium	9.9	3.3	
Beryllium	0.39	0.20	
Cadmium	0.40 U	0.40	U
Calcium	121 U	121	U
Chromium	1.3	0.57	J
Cobalt	0.60 U	0.60	U
Copper	15.8	8.0	
Iron	66.4	44.9	J
Lead	2.0 U	2.0	U
Magnesium	55.8	8.0	U
Manganese	2.2	4.5	
Mercury	0.14 U	0.14	U
Nickel	0.60 U	0.60	U
Potassium	89.5	58.8	J
Selenium	6.0 U	6.0	U
Silver	5.1	1.1	J
Sodium	184 U	184	U
Thallium	2.0 U	2.0	U
Vanadium	0.50 U	0.50	U
Zinc	6.0 U	6.0	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-406-0006	OFF-SD-407-0006	OFF-SD-408-0006	OFF-SD-408-0006-D	OFF-SD-409-0006	OFF-SD-409-0006-D	OFF-SD-410-0006	OFF-SD-411-0006	OFF-SD-412-0006	OFF-SD-413-0006	OFF-SD-414-0006	OFF-SD-415-0006	OFF-SD-416-0006	OFF-SD-417-0006	OFF-SD-418-0006	OFF-SD-419-0006	OFF-SD-419-0006-D	OFF-SD-420-0006	
Sample Location	SD-406	SD-407	SD-408	SD-408	SD-409	SD-409	SD-410	SD-411	SD-412	SD-413	SD-414	SD-415	SD-416	SD-417	SD-418	SD-419	SD-419	SD-420	
Date Sampled	11/12/2001	11/12/2001	11/14/2001	11/14/2001	11/14/2001	11/14/2001	11/14/2001	11/13/2001	11/13/2001	11/13/2001	11/9/2001	11/12/2001	11/14/2001	11/13/2001	11/8/2001	11/8/2001	11/8/2001	11/8/2001	
Interval	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	
QC Identifier	None	None	Field Dup. OFF-SD-408-0006	Field Dup. OFF-SD-408-0006	Field Dup. OFF-SD-409-0006	Field Dup. OFF-SD-409-0006	None	None	None	None	None	None	None	None	None	Field Dup. OFF-SD-419-0006	Field Dup. OFF-SD-419-0006	None	
Semivolatile Organic Analysis (UG/KG)																			
2-Methylnaphthalene	64 U	66 U	60 U	64 UJ	61 U	77 UJ	470	66 U	28 J	58 U	100 J	62 U	61 U	68 U	120 U	130 U	140 U	280 U	
Acenaphthene	210 U	220 U	200 U	210 UJ	200 U	260 UJ	3700	64 J	110 J	190 U	190 J	200 UJ	78 J	53 J	410 U	53 J	450 U	930 U	
Acenaphthylene	64 U	66 U	60 U	64 UJ	61 U	77 UJ	400	100	580	81 J	1500 J	24 J	280	250	120 U	91 J	130 J	120 J	
Anthracene	210 U	220 U	23 J	33 J	200 U	45 J	5000	250	750	130 J	2100 J	43 J	380	430	60 J	210 J	190 J	340 J	
Benzo(a)anthracene	64 U	66 U	85	110 J	58 J	110 J	9200	840	1400	430 J	4900 J	120 J	1200	1100	180	580	530	860	
Benzo(a)pyrene	64 U	66 U	90	130 J	69	120 J	9500	680 J	1000	320 J	3900 J	140 J	1400	810	160	470	540	850	
Benzo(b)fluoranthene	64 U	66 U	120	170 J	78	160 J	12000	990 J	1200	470 J	5100 J	160	1600	1000	180	600	700	1000	
Benzo(g,h,i)perylene	64 U	66 U	78	96 J	61 U	81 J	5500	170 J	340	58 UJ	1300 J	88	790	250	76 J	180	180 J	280 J	
Benzo(k)fluoranthene	210 U	220 U	53 J	84 J	35 J	62 J	4600	480 J	660	220 J	2800 J	72 J	680	520	89 J	280 J	340 J	580 J	
Chrysene	210 U	220 U	84 J	120 J	51 J	110 J	9100	920	1200	440 J	4200 J	120 J	1200	1000	180 J	620	590	990	
Dibenzo(a,h)anthracene	64 U	66 U	60 U	64 UJ	61 U	77 UJ	1500	66 UJ	120	58 UJ	480 J	62 U	220	94	120 U	130 U	140 U	280 U	
Dibenzofuran	210 U	220 U	200 U	210 UJ	200 U	260 UJ	2000	49 J	490	190 U	600 J	200 UJ	77 J	68 J	410 U	440 U	450 U	930 U	
Fluoranthene	210 U	46 J	160 J	230 J	100 J	240 J	26000	1800	2800	830	13000 J	250 J	2800	2100	430	1300	1300	2000	
Fluorene	210 U	220 U	200 U	210 UJ	200 U	260 UJ	3300	92 J	470	29 J	560 J	200 UJ	120 J	110 J	410 U	69 J	54 J	110 J	
Indeno(1,2,3-cd)pyrene	64 U	66 U	74	100 J	61 U	77 UJ	5200	200 J	400	86 J	1600 J	91	860	310	80 J	200	200 J	310 J	
Naphthalene	210 U	220 U	200 U	210 UJ	200 U	260 UJ	880	220 U	280	190 UJ	250 J	200 UJ	200 U	49 J	410 U	440 U	450 U	930 U	
Phenanthrene	210 U	24 J	94 J	130 J	75 J	160 J	18000	1200	3000	490 J	9600 J	150 J	1500	1400	250 J	800	780	1300	
Pyrene	210 U	37 J	150 J	220 J	91 J	230 J	21000	2000	2900	1000 J	11000 J	250 J	2400	2000	370 J	1300	1300	2000	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-406-0006	OFF-SD-407-0006	OFF-SD-408-0006	OFF-SD-408-0006-D	OFF-SD-409-0006	OFF-SD-409-0006-D	OFF-SD-410-0006	OFF-SD-411-0006	OFF-SD-412-0006	OFF-SD-413-0006	OFF-SD-414-0006	OFF-SD-415-0006	OFF-SD-416-0006	OFF-SD-417-0006	OFF-SD-418-0006	OFF-SD-419-0006	OFF-SD-419-0006-D	OFF-SD-420-0006	
Sample Location	SD-406	SD-407	SD-408	SD-408	SD-409	SD-409	SD-410	SD-411	SD-412	SD-413	SD-414	SD-415	SD-416	SD-417	SD-418	SD-419	SD-419	SD-420	
Date Sampled	11/12/2001	11/12/2001	11/14/2001	11/14/2001	11/14/2001	11/14/2001	11/14/2001	11/13/2001	11/13/2001	11/13/2001	11/9/2001	11/12/2001	11/14/2001	11/13/2001	11/8/2001	11/8/2001	11/8/2001	11/8/2001	
Interval	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	0.0-0.5	
QC Identifier	None	None	Field Dup. OFF-SD-408-0006	Field Dup. OFF-SD-408-0006	Field Dup. OFF-SD-409-0006	Field Dup. OFF-SD-409-0006	None	None	None	None	None	None	None	None	None	Field Dup. OFF-SD-419-0006	Field Dup. OFF-SD-419-0006	None	
TAL Metal Analysis (MG/KG)																			
Aluminum	6030	6290	6080	7770	5630	7770	10000	7380	10800	7550	12200	5530	5870	6560	6260	5810	5950	5920	
Antimony	0.61 U	0.64 U	0.053 U	0.062 U	0.055 U	0.077 U	0.063 U	0.74 U	0.058 UJ	0.095 U	0.051 UJ	0.66 U	0.053 U	0.93 U	0.055 UJ	2.9 J	0.18 U	0.060 UJ	
Arsenic	2.4	2.1	3.1 J	3.0 J	6.4 J	4.9 J	4.4 J	4.4 J	5.4 J	4.7 J	6.7 J	2.2	3.3 J	5.2 J	3.2 J	2.7 J	2.9 J	3.4 J	
Barium	2.0 U	7.8	3.7	4.4	4.9	7.1	6.1	10.7 J	5.7 J	9.2 J	23.0	4.1	7.2	12.8 J	11.6	7.9	7.8	12.0	
Beryllium	0.14 U	0.16 U	0.14 U	0.17 U	0.20 U	0.22 U	0.25 U	0.30	0.26	0.26	0.36	0.16	0.22 U	0.24	0.16	0.18	0.19	0.24	
Cadmium	0.025 U	0.022 U	0.021 U	0.025 U	0.022 U	0.031 U	0.025 U	0.024 UJ	0.023 UJ	0.022 UJ	0.87 J	0.023 U	0.021 U	1.5 J	0.47 J	0.44 J	0.45 J	0.52 J	
Calcium	2990	36300	1650	2540	319 J	2700 J	884	42100 J	1440 J	11300 J	9730 J	1780	20200	11000 J	7240	2240	3560	2130	
Chromium	10.8	11.4	11.3	13.6	11.2	15.4	17.5	11.2	17.5	10.7	21.3 J	10.6	10.8	12.1	11.3	11.8	12.4	14.6	
Cobalt	3.9 J	3.5 J	4.9	6.0	5.0	4.7	5.5	4.6 J	7.1 J	7.4 J	16.8	3.5 J	3.7	3.6 J	3.4	3.3	3.3	3.4	
Copper	6.2 U	7.8	11.0	14.2	11.9	13.8	21.8	18.6 J	25.4 J	51.5 J	20.5 J	9.1	20.6	50.4 J	19.5	19.4	14.7	26.2	
Iron	13400	11900	12400	15300	15400	16700	18700	16100	29800	29200	335000	11500	14200	16200	12500	11900	12300	12900	
Lead	13.0	12.9	15.2	18.3	12.2 J	21.9 J	23.4	42.3 J	64.0 J	191 J	105 J	18.0	44.8	55.2 J	19.5	24.0	26.6	39.9	
Magnesium	2970	3200	2990	3740	2570	3920	4640	4490	5190	5020	7300	2660	3010	3560	2860	2900	3000	3040	
Manganese	110	101	81.9	101	100	117	114	169 J	515 J	688 J	612	95.2	144	130 J	95.8	98.5	98.8	103	
Mercury	0.032 J	0.038 J	0.029 J	0.035 J	0.030 J	0.073	0.060	0.058	0.019 J	0.017 U	0.018 U	0.049	0.037 J	0.066	0.053	0.057	0.061	0.085	
Nickel	12.1	11.1	12.2	15.4	12.9	15.0	20.6	15.6 J	18.7 J	17.2 J	27.6 J	10.2	10.9	11.9 J	10.8	10.3	10.6	11.6	
Potassium	332	584	463	543	456 J	839 J	743	775 J	340 J	766 J	677	414	576	599 J	557	623	628	851	
Selenium	5.9 U	5.1 U	0.33 J	0.57	0.51 J	0.46 U	0.41 J	0.37 UJ	0.52 U	0.81 U	0.75 J	4.8 U	0.43 J	6.2 J	0.51 J	0.39 J	0.41 J	0.36 UJ	
Silver	0.063 U	0.056 U	0.053 U	0.062 U	0.055 U	0.077 U	0.063 U	0.061 UJ	0.058 UJ	0.056 UJ	0.051 UJ	0.057 U	0.053 U	0.061 UJ	0.055 UJ	0.056 UJ	0.061 UJ	0.060 UJ	
Sodium	1900	3880	2540	3110	2130 J	4660 J	3710	4060	2190	2300	1670	2270	3140	3830	2800	3340	3580	4340	
Thallium	1.6	1.5	0.55 U	0.33 U	0.71 U	0.53 U	0.89 U	0.87 U	1.8 U	1.6 U	2.2	1.3	0.50 U	2.4 J	0.11 U	0.36	0.12 U	0.41	
Vanadium	12.7	11.8	11.8	14.6	15.9	16.5	18.1	16.3	22.2 J	17.3 J	24.2	10.3	14.2	16.4	12.8	13.0	13.1	15.7	
Zinc	35.9	34.1	39.1	47.0	38.9	55.8	61.1	62.8 J	91.9 J	75.1 J	114	44.4	60.3	83.9 J	53.7	57.2	56.2	70.1	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-421-0006		OFF-SD-422-0006		OFF-SD-423-0006		OFF-SD-424-0006		OFF-SD-425-0006		OFF-SD-426-0006		OFF-SD-427-1824	OFF-SD-427-1824-D	OFF-SD-427-0006	OFF-SD-428-1824	OFF-SD-428-0006	OFF-SD-429-0006	OFF-SD-430-1824	OFF-SD-430-0006	OFF-SD-431-1824	OFF-SD-431-0006	OFF-SD-432-0006	OFF-SD-432-0006-D	OFF-SD-432-1824	OFF-SD-433-0006														
Sample Location	SD-421		SD-422		SD-423		SD-424		SD-425		SD-426		SD-427	SD-427	SD-427	SD-428	SD-428	SD-429	SD-430	SD-430	SD-431	SD-431	SD-432	SD-432	SD-432	SD-433														
Date Sampled	11/8/2001		11/8/2001		11/8/2001		11/13/2001		11/13/2001		11/14/2001		11/12/2001	11/12/2001	11/12/2001	11/14/2001	11/14/2001	11/12/2001	11/12/2001	11/12/2001	11/12/2001	11/12/2001	11/13/2001	11/13/2001	11/13/2001	11/12/2001														
Interval	0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		1.5-2.0	1.5-2.0	0.0-0.5	1.5-2.0	0.0-0.5	0.0-0.5	1.5-2.0	0.0-0.5	1.5-2.0	0.0-0.5	0.0-0.5	0.0-0.5	1.5-2.0	0.0-0.5														
QC Identifier	None		None		None		None		None		None		Field Dup. OFF-SD-427-1824	Field Dup. OFF-SD-427-1824	None	None	None	None	None	None	None	None	Field Dup. OFF-SD-432-0006	Field Dup. OFF-SD-432-0006	None	None														
Semivolatile Organic Analysis (UG/KG)																																								
2-Methylnaphthalene	260	U	290	U	380	U	58	U	44	J	63	U	60	U	58	U	82	U	60	U	73	U	65	U	61	U	63	U	58	U	62	U	55	U	58	U	60	J	68	U
Acenaphthene	860	U	130	J	380	J	36	J	120	J	210	U	200	U	190	U	270	U	200	U	240	U	210	U	200	U	210	U	190	U	200	U	180	U	190	U	92	J	220	U
Acenaphthylene	260	U	210	J	380	U	38	J	52	J	63	U	60	U	58	U	82	U	47	J	64	J	65	U	61	U	63	U	58	U	62	U	84		100		760		68	U
Anthracene	120	J	450	J	720	J	230		340		210	U	200	U	190	U	270	U	100	J	180	J	210	U	200	U	210	U	190	U	200	U	130	J	150	J	1400		220	U
Benzo(a)anthracene	320		1300		1600		300		830		63	U	60	U	58	U	82	U	370		580		65	U	61	U	63	U	58	U	62	U	340		520		2800		68	U
Benzo(a)pyrene	340		1000		1600		230	J	640	J	63	U	60	U	58	U	82	U	320	J	530	J	65	U	61	U	63	U	58	U	62	U	240		370		2000		68	U
Benzo(b)fluoranthene	420		1200		2100		320	J	900	J	63	U	60	U	58	U	82	U	420	J	740	J	65	U	61	U	63	U	58	U	62	U	300		500		2600		37	J
Benzo(g,h,i)perylene	260	U	480		540	J	83	J	160	J	63	U	60	U	58	U	82	U	100	J	170	J	65	U	61	U	63	U	58	U	62	U	100		110		670		68	U
Benzo(k)fluoranthene	210	J	560	J	980	J	140	J	430	J	210	U	200	U	190	U	270	U	210	J	320	J	210	U	200	U	210	U	190	U	200	U	140	J	220		1100		220	U
Chrysene	390	J	1500		1700		310		820		210	U	200	U	190	U	270	U	350		610		210	U	200	U	210	U	190	U	200	U	320		500		2800		220	U
Dibenzo(a,h)anthracene	260	U	290	U	380	U	58	UJ	54	UJ	63	U	60	U	58	U	82	U	60	UJ	73	UJ	65	U	61	U	63	U	58	U	62	U	55	U	58	U	240		68	U
Dibenzofuran	860	U	970	U	130	J	28	J	87	J	210	U	200	U	190	U	270	U	200	U	240	U	210	U	200	U	210	U	190	U	200	U	23	J	20	J	270	J	220	U
Fluoranthene	840	J	2900		3800		640		1500		210	U	200	U	190	U	39	J	680		1200		36	J	200	U	36	J	24	J	31	J	750		1100		6000		46	J
Fluorene	860	U	160	J	320	J	60	J	140	J	210	U	200	U	190	U	270	U	26	J	51	J	210	U	200	U	210	U	190	U	200	U	38	J	31	J	400	J	220	U
Indeno(1,2,3-cd)pyrene	150	J	500		560	J	85	J	200	J	63	U	60	U	58	U	82	U	120	J	200	J	65	U	61	U	63	U	58	U	62	U	120		140		810		68	U
Naphthalene	860	U	970	U	1200	U	27	J	45	J	210	U	200	U	190	U	270	U	200	U	240	U	210	U	200	U	210	U	190	U	200	U	180	U	190	U	160	J	220	U
Phenanthrene	530	J	1800		2600		560		1300		210	U	200	U	190	U	270	U	390		740		210	U	200	U	25	J	190	U	200	U	530		520		4800		25	J
Pyrene	750	J	2700		3900		620		1700		210	U	200	U	190	U	35	J	840		1500		33	J	200	U	31	J	23	J	28	J	700		1000		5600		47	J

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-421-0006		OFF-SD-422-0006		OFF-SD-423-0006		OFF-SD-424-0006		OFF-SD-425-0006		OFF-SD-426-0006		OFF-SD-427-1824	OFF-SD-1824-D	OFF-SD-427-0006	OFF-SD-428-1824	OFF-SD-428-0006	OFF-SD-429-0006	OFF-SD-430-1824	OFF-SD-430-0006	OFF-SD-431-1824	OFF-SD-431-0006	OFF-SD-432-0006	OFF-SD-0006-D	OFF-SD-432-1824	OFF-SD-433-0006														
Sample Location	SD-421		SD-422		SD-423		SD-424		SD-425		SD-426		SD-427	SD-427	SD-427	SD-428	SD-428	SD-429	SD-430	SD-430	SD-431	SD-431	SD-432	SD-432	SD-432	SD-433														
Date Sampled	11/8/2001		11/8/2001		11/8/2001		11/13/2001		11/13/2001		11/14/2001		11/12/2001	11/12/2001	11/12/2001	11/14/2001	11/14/2001	11/12/2001	11/12/2001	11/12/2001	11/12/2001	11/12/2001	11/13/2001	11/13/2001	11/13/2001															
Interval	0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		0.0-0.5		1.5-2.0	1.5-2.0	0.0-0.5	1.5-2.0	0.0-0.5	0.0-0.5	1.5-2.0	0.0-0.5	1.5-2.0	0.0-0.5	0.0-0.5	0.0-0.5	1.5-2.0	0.0-0.5														
QC Identifier	None		None		None		None		None		None		Field Dup. OFF-SD-427-1824	Field Dup. OFF-SD-427-1824	None	None	None	None	None	None	None	None	Field Dup. OFF-SD-432-0006	Field Dup. OFF-SD-432-0006	None	None														
TAL Metal Analysis (MG/KG)																																								
Aluminum	5390		6420		10100		8810		12800		5000		9210	8180	7220	7230	7490	7780	8170	5950	8700	5170	8620	8050	7880	5430														
Antimony	0.056	UJ	0.13	U	0.082	UJ	0.051	UJ	1.5	J	0.70	U	0.72	U	0.79	U	0.56	U	0.87	U	1.1	U	0.67	U	0.65	U	0.53	U	0.83	U	0.60	U	1.1	J	4.4	J	4.1	J	0.53	U
Arsenic	2.6	J	3.5	J	6.9	J	5.8	J	10.6	J	2.8	J	2.4	J	2.0	2.6	3.1	J	4.5	J	4.7	J	4.5	J	2.6	J	3.2	J	1.4	J	4.7	J	6.1	J	4.6	J	2.2	J		
Barium	8.4		27.7		33.0		16.9	J	9.6	J	5.2	J	3.2	U	3.6	4.6	4.3	J	10.7	J	6.0		4.0	4.3	1.9	U	2.8	U	8.6	J	10.1	J	152	J	5.1					
Beryllium	0.18		0.25		0.47		0.25		0.23		0.19		0.16		0.17	0.18	U	0.23		0.32		0.23	0.18	0.16	0.17	0.13	U	0.26		0.30		0.25		0.19						
Cadmium	0.42	J	0.57	J	1.1	J	0.13	J	2.8	J	0.024	UJ	0.022	U	0.021	U	0.029	U	0.023	UJ	0.030	UJ	0.024	U	0.022	U	0.026	U	0.023	U	0.024	U	0.020	UJ	2.2	J	2.3	J	0.025	U
Calcium	309		909		2400		11000	J	18700	J	5990	J	340	233	547	6820	J	9290	J	761	282	455	799	2280	11000	J	6410	J	6170	J	3520									
Chromium	12.7		15.9		27.5		26.1		18.6		10.2		13.5	13.7	14.0	11.8		15.6		17.6	14.8	11.6	14.8	12.3	11.5		12.7		12.1		12.1		11.9							
Cobalt	2.9		3.9		6.4		7.6	J	5.5	J	3.2		4.9	J	3.7	J	3.4	J	4.3		4.3	3.9	J	4.4	J	3.6	J	5.0	J	3.4	J	7.5	J	6.2	J	6.9	J	3.1	J	
Copper	16.1		32.3		43.4		56.7	J	26.8	J	8.8	J	6.6	U	7.4	9.3	U	11.1	J	18.2	J	45.9		9.8	26.4	9.9	6.6	U	69.2	J	75.8	J	219	J	9.1					
Iron	11000		14300		21100		51300		48600		11000		18500	16000	14700	15100	16300	15400	16900	12000	17600	10600	24700	28900	30200	11300														
Lead	27.6		55.1		69.7		122	J	106	J	20.0	J	26.8	23.2	20.0	22.9	J	36.8	J	24.4		13.1	15.5	24.3	14.3	282	J	644	J	734	J	17.5								
Magnesium	2600		3180		5300		3950		7260		2900		4280	3750	3670	3960	4220	3940	3870	2910	3940	2610	4120	5170	3400	2670														
Manganese	85.7		114		188		357	J	498	J	93.5		169	123	112	122	136	125	112	87.2	121	81.4	338	J	379	J	412	J	91.0											
Mercury	0.078		0.096		0.23		0.035		0.056		0.025	J	0.026	J	0.027	0.041	J	0.096		0.059		0.070	0.032	J	0.061	0.033	J	0.040	J	0.019	J	0.019	U	0.019	J	0.053				
Nickel	10.2		13.3		19.7		26.5	J	20.5	J	9.8		15.6	14.9	12.6	13.7	14.2	16.1	17.0	13.4	17.5	9.9	17.4	J	17.7	J	16.9	J	10.2											
Potassium	574		736		1880		416	J	886	J	549	J	386	369	559	489	J	1030	J	751	463	458	358	321	325	J	354	J	332	J	545									
Selenium	0.33	UJ	0.39	UJ	0.49	UJ	1.7	U	10.9	J	4.0	J	9.4	5.9	U	7.4	U	5.9	J	7.7	J	6.9	6.9	5.6	U	7.0	4.9	U	0.30	UJ	9.9	J	9.4	J	4.4	U				
Silver	0.056	UJ	0.066	UJ	0.082	UJ	0.051	UJ	0.053	UJ	0.060	UJ	0.056	U	0.052	U	0.074	U	0.057	UJ	0.075	UJ	0.061	U	0.054	U	0.064	U	0.057	U	0.059	U	0.050	UJ	0.11	J	0.12	J	0.062	U
Sodium	2730		3920		9040		1960		1360		3000		1750	1900	3560	2440	5060	2910	2080	2630	1880	2060	1750	2060	2080	2380														
Thallium	0.53		0.84		0.82		1.6	U	5.2	J	1.5	J	2.5	1.9	1.6	2.2	J	2.5	J	1.9	2.1	0.98	2.1	1.3	1.4	U	4.3	J	4.4	J	1.3									
Vanadium	12.6		16.8		26.5		16.8	J	20.2	J	11.9		17.7	12.6	15.4	14.1	J	17.5	16.7	16.6	10.8	13.8	12.0	16.5	J	14.9	J	12.9	J	12.3										
Zinc	54.1		94.0		124		106	J	127	J	38.3		44.4	38.7	41.7	49.3	66.2	56.1	40.4	37.0	47.0	31.4	101	J	112	J	315	J	40.1											

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ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-433-1824	OFF-SD-434-0006	OFF-SD-434-0006-D	OFF-SD-434-1824	OFF-SD-435-0006	OFF-SD-435-1824	OFF-SD-436-0006	OFF-SD-436-0006-D	OFF-SD-436-1824	OFF-SD-437-0006	OFF-SD-437-1824	OFF-SD-438-1824	OFF-SD-438-0006	OFF-SD-439-0006	OFF-SD-439-0006-D	OFF-SD-439-0612	OFF-SD-439-1824	OFF-SD-440-0006	OFF-SD-440-1824	OFF-SD-441-0006	
Sample Location	SD-433	SD-434	SD-434	SD-434	SD-435	SD-435	SD-436	SD-436	SD-436	SD-437	SD-437	SD-438	SD-438	SD-439	SD-439	SD-439	SD-439	SD-440	SD-440	SD-441	
Date Sampled	11/12/2001	11/14/2001	11/14/2001	11/14/2001	11/12/2001	11/12/2001	11/12/2001	11/12/2001	11/12/2001	11/8/2001	11/8/2001	11/8/2001	11/8/2001	11/8/2001	10/29/2001	10/29/2001	10/29/2001	11/8/2001	11/8/2001	11/8/2001	
Interval	1.5-2.0	0.0-0.5	0.0-0.5	1.5-2.0	0.0-0.5	1.5-2.0	0.0-0.5	0.0-0.5	1.5-2.0	0.0-0.5	1.5-2.0	1.5-2.0	0.0-0.5	0.0-0.5	0.0-0.5	0.5-1.0	1.5-2.0	0.0-0.5	1.5-2.0	0.0-0.5	
QC Identifier	None	Field Dup. OFF-SD-434-0006	Field Dup. OFF-SD-434-0006	None	None	None	Field Dup. OFF-SD-436-0006	Field Dup. OFF-SD-436-0006	None	None	None	None	None	None	Field Dup. OFF-SD-439-0006	Field Dup. OFF-SD-439-0006	None	None	None	None	
Semivolatile Organic Analysis (UG/KG)																					
2-Methylnaphthalene	61 U	65 U	67 U	62 U	72 U	60 U	64 U	65 U	26 J	140 U	120 U	120 U	130 U	370 U	370 U	47 J	44 J	120 U	120 U	630 U	
Acenaphthene	200 U	210 U	220 U	210 U	240 U	200 U	38 J	32 J	48 J	450 U	410 U	380 U	67 J	120 J	74 J	710 J	130 J	400 U	390 U	2100 U	
Acenaphthylene	61 U	93	51 J	94	72 U	60 U	210	210	280	140 U	120 U	120 U	150	370 U	57 J	160 J	41 J	140	120 U	630 U	
Anthracene	200 U	150 J	100 J	230	240 U	200 U	370	420	440	51 J	410 U	380 U	320 J	300 J	180 J	3400	280	210 J	390 U	2100 U	
Benzo(a)anthracene	61 U	400	330	540	72 U	60 U	980	1200	1200	140	120 U	120 U	770	540	490	1400	430	580	120 U	600 J	
Benzo(a)pyrene	61 U	340 J	280 J	460	32 J	60 U	850	1000	1100	130 J	120 U	120 U	740	550	500	710	440 J	580	120 U	570 J	
Benzo(b)fluoranthene	61 U	440 J	360 J	570	48 J	60 U	1000	1300	1300	160	120 U	120 U	880	680	680	1400	530 J	660	120 U	670	
Benzo(g,h,i)perylene	61 U	100 J	67 UJ	160	72 U	60 U	480	530	620	140 U	120 U	120 U	250 J	220 J	190 J	170 J	200 J	230	120 U	300 J	
Benzo(k)fluoranthene	200 U	230 J	190 J	290	240 U	200 U	440	530	520	77 J	410 U	380 U	520	250 J	330 J	710	250 J	390 J	390 U	320 J	
Chrysene	200 U	360	300	570	26 J	200 U	870	1100	1100	150 J	410 U	380 U	810	600	460	1700	530	580	390 U	640 J	
Dibenzo(a,h)anthracene	61 U	65 UJ	67 UJ	60 J	72 U	60 U	140	170	160	140 U	120 U	120 U	130 U	74 J	68 J	85 J	59 UJ	120 U	120 U	630 U	
Dibenzofuran	200 U	39 J	220 U	21 J	240 U	200 U	52 J	55 J	71 J	450 U	410 U	380 U	58 J	73 J	41 J	250 J	56 J	400 U	390 U	2100 U	
Fluoranthene	200 U	810	640	1000	47 J	200 U	2100	2600	2700	360 J	410 U	380 U	1800	1400	900	5700	780	1400	390 U	1600 J	
Fluorene	200 U	52 J	24 J	63 J	240 U	200 U	96 J	110 J	120 J	450 U	410 U	380 U	120 J	98 J	73 J	500	120 J	74 J	390 U	2100 U	
Indeno(1,2,3-cd)pyrene	61 U	120 J	94 J	190	27 J	60 U	540	610	680	62 J	120 U	120 U	280 J	240 J	200 J	240 J	150 J	270	120 U	310 J	
Naphthalene	200 U	210 U	220 U	210 U	240 U	200 U	37 J	28 J	53 J	450 U	410 U	380 U	420 U	370 U	370 U	420 U	46 J	400 U	390 U	2100 U	
Phenanthrene	200 U	680 J	400 J	700	29 J	200 U	1300	1500	1600	200 J	410 U	380 U	1200	1300 J	760	2200	930	890	390 U	890 J	
Pyrene	200 U	920	760	880	50 J	200 U	1800	2300	2400	300 J	410 U	380 U	1800	1100	900	4900	1300	1200	390 U	1300 J	

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ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-433-1824	OFF-SD-434-0006	OFF-SD-434-0006-D	OFF-SD-434-1824	OFF-SD-435-0006	OFF-SD-435-1824	OFF-SD-436-0006	OFF-SD-436-0006-D	OFF-SD-436-1824	OFF-SD-437-0006	OFF-SD-437-1824	OFF-SD-438-1824	OFF-SD-438-0006	OFF-SD-439-0006	OFF-SD-439-0006-D	OFF-SD-439-0612	OFF-SD-439-1824	OFF-SD-440-0006	OFF-SD-440-1824	OFF-SD-441-0006	
Sample Location	SD-433	SD-434	SD-434	SD-434	SD-435	SD-435	SD-436	SD-436	SD-436	SD-437	SD-437	SD-438	SD-438	SD-439	SD-439	SD-439	SD-439	SD-440	SD-440	SD-441	
Date Sampled	11/12/2001	11/14/2001	11/14/2001	11/14/2001	11/12/2001	11/12/2001	11/12/2001	11/12/2001	11/12/2001	11/8/2001	11/8/2001	11/8/2001	11/8/2001	10/29/2001	10/29/2001	10/29/2001	11/13/2001	11/8/2001	11/8/2001	11/8/2001	
Interval	1.5-2.0	0.0-0.5	0.0-0.5	1.5-2.0	0.0-0.5	1.5-2.0	0.0-0.5	0.0-0.5	1.5-2.0	0.0-0.5	1.5-2.0	1.5-2.0	0.0-0.5	0.0-0.5	0.0-0.5	0.5-1.0	1.5-2.0	0.0-0.5	1.5-2.0	0.0-0.5	
QC Identifier	None	Field Dup. OFF-SD-434-0006	Field Dup. OFF-SD-434-0006	None	None	None	Field Dup. OFF-SD-436-0006	Field Dup. OFF-SD-436-0006	None	None	None	None	None	Field Dup. OFF-SD-439-0006	Field Dup. OFF-SD-439-0006	None	None	None	None	None	
TAL Metal Analysis (MG/KG)																					
Aluminum	6870	6080	7810	7030	6170	6040	7770	7080	7020	5500	5290	6550	6640	7190	6580	11800	6240	5350	4960	4930	
Antimony	0.72 U	1.4 U	1.0 U	1.1 U	0.62 U	0.46 U	0.82 U	0.88 U	1.7	0.30 U	0.053 UJ	0.057 UJ	0.091 U	0.055 U	0.050 U	0.059 U	2.1 J	0.054 UJ	0.058 UJ	0.084 U	U
Arsenic	5.4 J	3.6 J	3.4 J	3.3 J	2.5 J	2.3 J	6.0 J	3.9	5.5 J	3.4 J	2.3 J	1.9 J	4.1 J	2.4	1.5	14.9	6.1 J	2.6 J	1.8 J	1.7 J	J
Barium	4.8	40.6 J	4.9 J	5.2 J	18.9	3.5	12.2	6.8	17.3	7.6	5.5	5.4	7.3	6.1	5.8	7.9	33.7 J	9.2	5.5	6.4	
Beryllium	0.23	0.21	0.21	0.17 U	0.22	0.16	0.42	0.28	0.29	0.18	0.15	0.21	0.21	0.19	0.21	0.39	0.25	0.17	0.13	0.14	
Cadmium	0.022 U	0.026 UJ	0.026 UJ	0.023 UJ	0.027 U	0.020 U	0.022 U	0.025 U	0.024 U	0.40 J	0.34 J	0.27 J	0.43 J	0.60 J	1.4 J	1.2 J	2.2 J	0.41 J	0.25 J	0.37 J	J
Calcium	271	22400 J	10100 J	23500 J	9010	374	45000 J	21500	5120	6620	274	112	6570	27400	17100	3190	765 J	975	201	7990	
Chromium	12.2	11.8	12.1	11.1	14.1	11.1	11.8	10.8	14.9	11.6	9.4	11.4	11.7	9.5 J	21.3 J	17.5 J	20.1	11.2	8.2	10.3	
Cobalt	4.4 J	3.8	4.9	4.1	3.1 J	5.6 J	4.6 J	5.6 J	6.1 J	2.7	2.3	2.9 J	3.8	5.6	5.9	11.1	3.8 J	3.1	2.1 J	2.7	
Copper	9.9	22.9	14.3 J	23.1	12.8	5.2 U	37.4 J	19.4	40.5	11.1 J	3.9 U	8.0 J	14.2 J	12.1	15.9	63.5	64.7 J	17.7	3.1 U	26.7	
Iron	15700	14700	16100	13900	11700	11100	19000	17000	27400	11000	9630	13200	14300	21300	31600	36100	28300	11300	9420	9860	
Lead	10.2	336 J	28.2 J	26.4 J	22.1	7.2	216 J	55.8	146	19.8	3.4 J	4.7 J	38.3	41.1	30.7	188	160 J	68.0	2.9 J	22.1	
Magnesium	2990	3260	3760	4090	3000	2860	4480	4210	3310	2650	2650	2760	3340	3750	4290	8000	3800	2510	2300	2420	
Manganese	111	115	158	115	84.7	77.7	190	158	184	82.5	72.1	83.1	107	330	325	609	206 J	93.6	71.3	79.0	
Mercury	0.019 U	0.030 J	0.036 J	0.033 J	0.050	0.018 U	0.023 J	0.027	0.047	0.057	0.019 U	0.019 U	0.045	0.016 U	0.032 J	0.061	0.068	0.066	0.018 U	0.060	
Nickel	13.7	12.5	14.6	14.7	11.2	11.4	14.1	13.4	17.7	10.1	9.6	11.3	12.4	13.0	17.2	22.3	22.9 J	10.1	8.2	9.1	
Potassium	553	552 J	470 J	407 J	694	467	534	473	429	644	643	477	509	336	346	559	523 J	483	427	477	
Selenium	6.9	5.0 J	6.1 J	6.2 J	4.7 U	4.4 U	7.2	5.5 U	9.3	0.58 J	0.77 J	0.34 UJ	0.89 J	0.33 U	0.30 U	0.35 U	9.8 J	0.38 J	0.79 J	0.56 J	J
Silver	0.054 U	0.064 UJ	0.065 UJ	0.057 UJ	0.066 U	0.051 U	0.056 U	0.062 U	0.17 U	0.067 UJ	0.053 UJ	0.057 UJ	0.059 UJ	0.055 U	0.050 U	0.059 U	0.13 J	0.054 UJ	0.058 UJ	0.057 UJ	UJ
Sodium	1940	3160	2380	2670	3110	2490	3520	2890	2170	3310	2480	2080	2770	1820	1930	2870	2320	2240	1630	2800	
Thallium	2.0	1.7 J	2.1 J	1.9 J	1.8	1.1	2.9	2.4	3.0	0.22 J	0.45	0.38	0.34	2.8	3.4	4.7	3.0 J	0.14 J	0.34	0.43	
Vanadium	14.3	13.4 J	12.7 J	13.0 J	12.4	12.9	14.9	15.9	17.1	11.4	12.9	15.9	14.7	13.8	13.8	22.4	16.3 J	12.1	10.4	10.2	
Zinc	34.8	63.2	54.7	50.1	47.5	25.7	92.8	81.7	115	45.5	20.8	28.2	53.4	45.2 J	94.7 J	175	153 J	63.1	18.9	48.2	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-441-1824		OFF-SD-442-0006		OFF-SD-442-1824		OFF-SD-443-0006		OFF-SD-443-1824		OFF-SD-444-0006		OFF-SD-444-1824		OFF-SD-445-0006		OFF-SD-445-1824		OFF-SD-446-1824		OFF-SD-446-0006		OFF-SD-460-0006		OFF-SD-460-1824		OFF-SD-461-0006		OFF-SD-461-1824		OFF-SD-462-1824		OFF-SD-462-0006		OFF-SD-463-1824		OFF-SD-463-0006		OFF-SD-464-1824		OFF-SD-464-0006	
Sample Location	SD-441		SD-442		SD-442		SD-443		SD-443		SD-444		SD-444		SD-445		SD-445		SD-446		SD-446		SD-460		SD-460		SD-461		SD-461		SD-462		SD-462		SD-463		SD-463		SD-464		SD-464	
Date Sampled	11/8/2001		11/9/2001		11/13/2001		11/13/2001		11/13/2001		11/8/2001		11/8/2001		11/13/2001		11/13/2001		11/8/2001		11/8/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001	
Interval	1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		1.5-2.0		0.0-0.5		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5	
QC Identifier	None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																																										
2-Methylnaphthalene	160	U	58	J	61	U	67	U	67	U	130	U	77	J	67	U	46	J	53	J	300	U	65	U	62	U	67	U	55	U	60	U	68	U	59	U	61	U	56	U	70	U
Acenaphthene	540	U	120	J	200	U	30	J	220	U	420	U	250	J	53	J	78	J	120	J	330	J	210	U	210	U	220	U	180	U	200	U	230	U	200	U	200	U	180	U	230	U
Acenaphthylene	160	U	870		56	J	110		67	U	100	J	140	U	76		66	J	58	J	330		65	U	62	U	67	U	55	U	60	U	68	U	59	U	61	U	56	U	70	U
Anthracene	77	J	1300		110	J	210	J	220	U	200	J	670		180	J	240		310	J	880	J	36	J	210	U	220	U	180	U	200	U	38	J	200	U	200	U	180	U	230	U
Benzo(a)anthracene	180		2900		360		670		58	J	530		960		570		450		590		2300		120		29	J	67	U	55	U	60	U	110		59	U	61	U	56	U	34	J
Benzo(a)pyrene	170		2400	J	290	J	550		43	J	540		860		500		470	J	700	J	2500		140		40	J	46	J	55	U	60	U	130		59	U	61	U	56	U	70	U
Benzo(b)fluoranthene	180		3200	J	400	J	690		53	J	680		950		670		640	J	920	J	3100		200		42	J	56	J	55	U	60	U	160		59	U	61	U	56	U	70	U
Benzo(g,h,i)perylene	97	J	790	J	61	UJ	150		67	U	190	J	260	J	150		140	J	270	J	880	J	100		62	U	67	U	55	U	60	U	98		59	U	61	U	56	U	70	U
Benzo(k)fluoranthene	86	J	1600	J	210	J	360		25	J	370	J	520		320		310	J	410	J	1500		64	J	210	U	220	U	180	U	200	U	63	J	200	U	200	U	180	U	230	U
Chrysene	190	J	2600		340		700		64	J	560		950		540		540		630		2500		130	J	33	J	220	U	180	U	200	U	120	J	200	U	200	U	180	U	32	J
Dibenzo(a,h)anthracene	160	U	280	J	61	UJ	67	U	67	U	130	U	140	U	67	U	66	UJ	150	UJ	270	J	65	U	62	U	67	U	55	U	60	U	68	U	59	U	61	U	56	U	70	U
Dibenzofuran	540	U	340	J	200	U	24	J	220	U	420	U	120	J	24	J	34	J	74	J	150	J	210	U	210	U	220	U	180	U	200	U	230	U	200	U	200	U	180	U	230	U
Fluoranthene	390	J	6100		590		1400		130	J	1300		1800		1200		920		1200		5100		290		64	J	76	J	180	U	39	J	260		200	U	200	U	180	U	68	J
Fluorene	540	U	340	J	41	J	58	J	220	U	68	J	340	J	58	J	69	J	130	J	360	J	210	U	210	U	220	U	180	U	200	U	230	U	200	U	200	U	180	U	230	U
Indeno(1,2,3-cd)pyrene	85	J	990	J	81	J	180		67	U	220	J	290	J	160		160	J	290	J	1000	J	110		62	U	67	U	55	U	60	U	98		59	U	61	U	56	U	70	U
Naphthalene	540	U	140	J	200	U	220	U	220	U	420	U	110	J	220	U	36	J	53	J	140	J	210	U	210	U	220	U	180	U	200	U	230	U	200	U	200	U	180	U	230	U
Phenanthrene	310	J	4900		360		760		64	J	840		2100		820		620		980		3500		130	J	42	J	60	J	180	U	46	J	150	J	200	U	200	U	180	U	44	J
Pyrene	390	J	6200		800		1400		130	J	1200		2100		1400		1100		1600		5300		240		56	J	71	J	180	U	47	J	220	J	200	U	200	U	180	U	59	J

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-441-1824		OFF-SD-442-0006		OFF-SD-442-1824		OFF-SD-443-0006		OFF-SD-443-1824		OFF-SD-444-0006		OFF-SD-444-1824		OFF-SD-445-0006		OFF-SD-445-1824		OFF-SD-446-1824		OFF-SD-446-0006		OFF-SD-460-0006		OFF-SD-460-1824		OFF-SD-461-0006		OFF-SD-461-1824		OFF-SD-462-1824		OFF-SD-462-0006		OFF-SD-463-1824		OFF-SD-463-0006		OFF-SD-464-1824		OFF-SD-464-0006																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Sample Location	SD-441		SD-442		SD-442		SD-443		SD-443		SD-444		SD-444		SD-445		SD-445		SD-446		SD-446		SD-460		SD-460		SD-461		SD-461		SD-462		SD-462		SD-463		SD-463		SD-464		SD-464																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Date Sampled	11/8/2001		11/9/2001		11/13/2001		11/13/2001		11/13/2001		11/8/2001		11/8/2001		11/13/2001		11/13/2001		11/8/2001		11/8/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
Interval	1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		1.5-2.0		0.0-0.5		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
QC Identifier	None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None		None																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
TAL Metal Analysis (MG/KG)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
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ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-465-1824		OFF-SD-465-0006		OFF-SD-466-0006		OFF-SD-466-1824		OFF-SD-467-0006		OFF-SD-467-1824		OFF-SD-468-0006		OFF-SD-468-1824		OFF-SD-469-0006		OFF-SD-469-1824	
Sample Location	SD-465		SD-465		SD-466		SD-466		SD-467		SD-467		SD-468		SD-468		SD-469		SD-469	
Date Sampled	11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001	
Interval	1.5-2.0		0.0-0.5		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	None		None		None		None		None		None		None		None		None		None	
Semivolatile Organic Analysis (UG/KG)																				
2-Methylnaphthalene	58	U	63	U	62	U	63	U	69	U	61	U	1600	U	100	U	150	U	100	UJ
Acenaphthene	190	U	210	U	200	UJ	39	J	230	U	200	U	5100	U	340	U	500	U	330	UJ
Acenaphthylene	58	U	63	U	74	J	63	U	69	U	61	U	1600	U	100	U	70	J	47	J
Anthracene	190	U	210	U	120	J	77	J	230	U	200	U	900	J	88	J	130	J	99	J
Benzo(a)anthracene	26	J	32	J	420	J	280		63	J	61	U	660	J	180		460		160	J
Benzo(a)pyrene	58	U	63	UJ	370		420		53	J	61	U	710	J	200		500		240	J
Benzo(b)fluoranthene	24	J	63	UJ	450		450		74		61	U	1200	J	280		690		350	J
Benzo(g,h,i)perylene	58	U	63	UJ	130	J	180		69	U	61	U	1600	U	170		370		180	J
Benzo(k)fluoranthene	190	U	210	UJ	250		200	J	32	J	200	U	5100	U	110	J	270	J	100	J
Chrysene	24	J	32	J	420		280		68	J	200	U	960	J	200	J	520		210	J
Dibenzo(a,h)anthracene	58	U	63	UJ	62	U	62	J	69	U	61	U	1600	U	100	U	98	J	100	UJ
Dibenzofuran	190	U	210	U	200	U	210	U	230	U	200	U	5100	U	340	U	500	U	330	UJ
Fluoranthene	51	J	51	J	800	J	420		120	J	200	U	1200	J	360		970		360	J
Fluorene	190	U	210	U	29	J	210	U	230	U	200	U	5100	U	340	U	500	U	330	UJ
Indeno(1,2,3-cd)pyrene	58	U	63	UJ	150	J	210		69	U	61	U	1600	U	160		350		170	J
Naphthalene	190	U	210	U	200	U	210	U	230	U	200	U	5100	U	340	U	500	U	330	UJ
Phenanthrene	50	J	210	U	460	J	260		49	J	200	U	730	J	160	J	460	J	180	J
Pyrene	48	J	51	J	820		420		120	J	200	U	1000	J	390		890		400	J

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
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ANALYTICAL RESULTS
OLD FIREFIGHTING TRAINING AREA
NEWPORT, RHODE ISLAND

Sample Number	OFF-SD-465-1824		OFF-SD-465-0006		OFF-SD-466-0006		OFF-SD-466-1824		OFF-SD-467-0006		OFF-SD-467-1824		OFF-SD-468-0006		OFF-SD-468-1824		OFF-SD-469-0006		OFF-SD-469-1824	
Sample Location	SD-465		SD-465		SD-466		SD-466		SD-467		SD-467		SD-468		SD-468		SD-469		SD-469	
Date Sampled	11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/14/2001		11/12/2001		11/12/2001		11/12/2001		11/12/2001	
Interval	1.5-2.0		0.0-0.5		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0		0.0-0.5		1.5-2.0	
QC Identifier	None		None		None		None		None		None		None		None		None		None	
TAL Metal Analysis (MG/KG)																				
Aluminum	5340		5080		3630		6890		6610		5930		12700		14100		13500		12200	
Antimony	0.95	U	0.68	U	0.77	U	1.1	U	0.88	U	0.90	U	2.1		2.1		2.1		4.4	
Arsenic	4.4	J	2.2	J	2.2	J	3.0	J	2.2	J	6.3	J	9.9	J	10.0	J	11.1	J	14.7	J
Barium	3.2	U	4.6	J	3.4	U	3.1	U	3.9	J	3.9	J	36.9		72.4		41.0		50.6	
Beryllium	0.18		0.14	U	0.13	U	0.16	U	0.15	U	0.17		0.82		0.73		0.88		0.61	
Cadmium	0.021	UJ	0.024	UJ	0.025	UJ	0.025	UJ	0.024	UJ	0.022	UJ	0.058	U	0.89		0.051	U	0.037	U
Calcium	273	J	8740	J	7490	J	1970	J	7200	J	6100	J	3880		1970		2630		14000	
Chromium	9.7		9.9		7.0		12.8		11.2		13.1		46.9		49.1		50.6		55.8	
Cobalt	3.8		3.0		2.4		4.5		3.4		4.0		6.7	J	7.9	J	7.1	J	10.4	J
Copper	7.2	J	7.4	J	13.1		12.3	J	10.6	J	36.4		86.8		103		102		202	
Iron	12400		10100		8310		14700		13200		13600		26900		27300		74300		76400	
Lead	10.7	J	14.1	J	15.9	J	24.6	J	16.1	J	19.8	J	134		203		151		174	
Magnesium	2350		2480		2080		3190		3320		2780		8060		6680		8450		8060	
Manganese	95.1		77.6		76.1		103		81.7		94.7		231		207		246		341	
Mercury	0.020	U	0.050		0.023	J	0.093		0.032	J	0.043		0.50		0.89		0.41		0.64	
Nickel	12.3		10.1		7.7		14.8		13.0		13.5		24.4		27.6		26.7		67.5	
Potassium	400	J	532	J	334	J	416	J	479	J	458	J	3600		2480		3500		2550	
Selenium	5.0	J	3.0	J	3.1	J	5.5	J	5.2	J	5.6	J	13.7	U	12.2		10.9		29.0	
Silver	0.052	UJ	0.060	UJ	0.062	UJ	0.062	UJ	0.061	UJ	0.056	UJ	0.41	U	1.1		0.99		1.9	
Sodium	1790		2350		1690		2140		2500		2350		20800		11000		21200		13800	
Thallium	1.5	J	1.4	J	0.99	J	1.6	J	1.6	J	1.8	J	2.7		3.2		3.0		9.0	
Vanadium	11.1	J	10.6		8.1		13.5	J	10.8	J	11.7	J	40.6		44.3		43.4		35.9	
Zinc	30.1		31.9		32.4		47.6		41.2		43.6		207		299		227		250	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; NA - Not Analyzed

APPENDIX B

DATA AND PROCESSING INFORMATION, GPS SURVEY OF SAMPLE STATIONS

2A. RAW DATA

PROPOSED Northing RISP feet NAD 83	PROPOSED Easting RISP feet NAD 83	Station	Date GPS Located	Date Sampled	Photo Date	Date Depth Recorded	Time Depth Recorded	Depth Recorded (feet)	Newport Tide Gauge Level	Bottom Elevation MSL	Actual Northing RISP feet NAD 83	Actual Easting RISP feet NAD 83	dN	dE	dist ft	dist m	Max PDOP	GPS fix STD DEV	Horizontal Precision m	Horizontal Precision ft
157210.20	375206.12	6	31-Oct	12-Nov	12-Nov	14-Nov	8:27 AM	9.3	1.63	-7.7	157215.44	375206.30	-5.2	-0.2	5.2	1.6	2.3	0.37	0.85	2.77
157210.20	375144.50	7	31-Oct	12-Nov	12-Nov	14-Nov	8:22 AM	9.9	1.71	-8.2	157213.70	375141.21	-3.5	3.3	4.8	1.5	2.5	0.32	0.97	3.17
157132.53	375203.68	8	31-Oct	14-Nov	14-Nov	14-Nov	8:29 AM	7.8	1.58	-6.2	157135.92	375210.66	-3.4	-7.0	7.8	2.4	2.3	0.34	0.89	2.91
157130.09	375103.02	9	31-Oct	14-Nov	14-Nov	14-Nov	8:15 AM	8.7	1.86	-6.8	157136.63	375103.05	-6.5	0.0	6.5	2.0	2.3	0.36	0.79	2.58
157105.72	374993.20	10	31-Oct	14-Nov	14-Nov	14-Nov	8:09 AM	9.3	1.99	-7.3	157110.77	374989.27	-5.0	3.9	6.4	1.9	2.2	0.55	0.71	2.32
157049.07	375041.40	11	30-Oct				TiNUS sampled				157051.65	375040.16	-2.6	1.2	2.9	0.9	2.0	0.24	0.84	2.77
157039.94	375110.95	12	30-Oct				TiNUS sampled				157043.59	375109.59	-3.6	1.4	3.9	1.2	2.0	0.23	0.89	2.92
157044.20	375179.89	13	30-Oct				TiNUS sampled				157048.69	375177.24	-4.5	2.6	5.2	1.6	2.0	0.31	0.87	2.86
157131.01	375361.08	14	30-Oct				TiNUS sampled				157134.10	375359.05	-3.1	2.0	3.7	1.1	1.8	0.31	0.82	2.69
157232.74	375403.79	15	31-Oct	12-Nov	12-Nov	14-Nov	8:41 AM	7.1	1.31	-5.8	157234.20	375401.61	-1.5	2.2	2.6	0.8	2.4	0.36	0.87	2.85
157210.81	375447.71	16	31-Oct				TiNUS sampled				157209.23	375445.28	1.6	2.4	2.9	0.9	2.0	0.38	0.81	2.65
157127.97	375619.76	17	30-Oct				TiNUS sampled				157129.61	375620.58	-1.6	-0.8	1.8	0.6	1.8	0.37	0.87	2.87
157222.39	375548.38	18	30-Oct	8-Nov	8-Nov	8-Nov	2:30 PM	6.8	1.76	-5.1	157222.22	375550.04	0.2	-1.7	1.7	0.5	2.7	0.27	0.94	3.10
157195.58	375627.69	19	30-Oct	8-Nov	8-Nov	8-Nov	2:03 PM	6.8	2.05	-4.7	157193.81	375625.42	1.8	2.3	2.9	0.9	3.6	3.86	0.92	3.02
157125.53	375739.33	20	31-Oct	8-Nov	8-Nov	8-Nov	11:29 AM	5.9	1.54	-4.4	157131.34	375740.45	-5.8	-1.1	5.9	1.8	3.9	0.37	0.93	3.04
157115.55	375835.72	21	30-Oct	8-Nov	8-Nov	8-Nov	11:25 AM	6.9	1.6	-5.3	157116.65	375836.14	-1.1	-0.4	1.2	0.4	3.6	0.30	0.90	2.94
157019.73	375897.98	22	30-Oct	8-Nov	8-Nov	8-Nov	10:28 AM	5.6	0.84	-4.7	157021.45	375899.49	-1.7	-1.5	2.3	0.7	3.4	0.36	0.77	2.54
157022.17	375967.53	23	30-Oct	8-Nov	8-Nov	8-Nov	10:25 AM	6.6	0.77	-5.8	157017.97	375966.53	4.2	1.0	4.3	1.3	3.3	0.32	0.77	2.53
156847.64	375982.17	24	30-Oct				TiNUS sampled				156852.36	375983.49	-4.7	-1.3	4.9	1.5	2.1	0.28	0.81	2.65
156668.30	376090.01	25	30-Oct				TiNUS sampled				156672.18	376089.41	-3.9	0.6	3.9	1.2	2.3	0.35	0.85	2.78
157085.58	375139.92	26	31-Oct	14-Nov	14-Nov	14-Nov	8:16 AM	6.5	1.83	-4.7	157085.00	375138.17	0.6	1.8	1.8	0.6	2.0	0.25	0.78	2.55
157185.58	375139.92	27	31-Oct	12-Nov	12-Nov	14-Nov	8:19 AM	9.5	1.78	-7.7	157188.76	375143.52	-3.2	-3.6	4.8	1.5	3.3	0.59	0.82	2.68
157085.58	375039.92	28	31-Oct	14-Nov	14-Nov	14-Nov	8:07 AM	7.5	2.04	-5.5	157084.68	375043.07	0.9	-3.2	3.3	1.0	4.1	0.38	0.96	3.15
157185.58	375039.92	29	31-Oct	12-Nov	12-Nov	14-Nov	8:12 AM	10.6	1.92	-8.7	157192.99	375039.06	-7.4	0.9	7.5	2.3	1.9	0.32	0.75	2.47
157285.58	375239.92	30	31-Oct	12-Nov	12-Nov	14-Nov	8:34 AM	9.9	1.45	-8.5	157291.27	375241.54	-5.7	-1.6	5.9	1.8	2.5	0.31	0.89	2.91
157185.58	375239.92	31	31-Oct	12-Nov	12-Nov	14-Nov	8:31 AM	8.8	1.53	-7.3	157193.24	375242.13	-7.7	-2.2	8.0	2.4	7.0	0.27	0.85	2.79
157085.58	375239.92	32	30-Oct				TiNUS sampled				157090.19	375240.43	-4.6	-0.5	4.6	1.4	2.2	0.35	0.80	2.62
157285.58	375339.92	33	31-Oct	12-Nov	12-Nov	14-Nov	8:38 AM	8.9	1.36	-7.6	157291.45	375340.26	-5.9	-0.3	5.9	1.8	2.6	0.39	0.92	3.02
157185.58	375339.93	34	31-Oct	14-Nov	14-Nov	14-Nov	10:21 AM	4.3	-1	-5.3	157189.20	375337.54	-3.6	2.4	4.3	1.3	2.1	0.32	0.87	2.86
157285.58	375439.93	35	31-Oct	12-Nov	12-Nov	14-Nov	8:43 AM	8.1	1.27	-6.8	157293.07	375436.45	-7.5	3.5	8.3	2.5	1.9	0.30	0.83	2.72
157185.58	375439.93	36	31-Oct				TiNUS sampled				157190.32	375441.02	-4.7	-1.1	4.9	1.5	3.8	0.24	0.90	2.94
157285.58	375539.93	37	31-Oct	8-Nov	8-Nov	8-Nov	2:35 PM	8.4	1.69	-6.7	157288.49	375531.97	-2.9	8.0	8.5	2.6	1.9	0.32	0.82	2.70
157185.58	375539.93	38	31-Oct	8-Nov	8-Nov	8-Nov	2:33 PM	5.4	1.72	-3.7	157189.63	375539.24	-4.1	0.7	4.1	1.3	2.3	0.36	0.81	2.67
156885.58	375939.94	39	30-Oct				TiNUS sampled				156890.69	375941.42	-5.1	-1.5	5.3	1.6	2.1	0.31	0.84	2.76
157185.58	375639.93	40	31-Oct	8-Nov	8-Nov	8-Nov	1:02 PM	6.8	2.27	-4.6	157183.72	375645.09	1.9	-5.2	5.5	1.7	2.1	0.35	0.76	2.49
157185.59	375739.93	41	31-Oct	8-Nov	8-Nov	8-Nov	1:00 PM	8.1	2.29	-5.8	157190.90	375739.14	-5.3	0.8	5.4	1.6	3.7	0.33	0.94	3.09
157085.58	375639.93	42	30-Oct				TiNUS sampled				157088.83	375641.78	-3.3	-1.9	3.7	1.1	2.0	0.27	0.76	2.50
157085.58	375739.93	43	30-Oct				TiNUS sampled				157085.51	375741.34	0.1	-1.4	1.4	0.4	2.6	0.24	0.89	2.92
157085.59	375839.93	44	31-Oct	8-Nov	8-Nov	8-Nov	11:27 AM	6.5	1.58	-4.9	157084.69	375841.01	0.9	-1.1	1.4	0.4	5.5	0.41	0.98	3.22
156985.58	375839.93	45	30-Oct				TiNUS sampled				156990.06	375840.01	-4.5	-0.1	4.5	1.4	2.1	0.25	0.80	2.62
156985.59	375939.94	46	31-Oct	8-Nov	8-Nov	8-Nov	10:27 AM	5.8	0.81	-4.9	156985.48	375942.08	0.1	-2.1	2.1	0.7	2.5	0.60	0.94	3.08
na	na	60	14-Nov	14-Nov	14-Nov	14-Nov	depth interpolated			-7.1	157138.84	375041.07	na	na	na	na	na	na	na	na
na	na	61	14-Nov	14-Nov	14-Nov	14-Nov	depth interpolated			-8.2	157190.88	375091.29	na	na	na	na	na	na	na	na
na	na	62	14-Nov	14-Nov	14-Nov	14-Nov	depth interpolated			-6.2	157136.88	375140.85	na	na	na	na	na	na	na	na
na	na	63	14-Nov	14-Nov	14-Nov	14-Nov	depth interpolated			-8.1	157240.02	375192.53	na	na	na	na	na	na	na	na
na	na	64	14-Nov	14-Nov	14-Nov	14-Nov	depth interpolated			-7.5	157191.00	375192.83	na	na	na	na	na	na	na	na
na	na	65	14-Nov	14-Nov	14-Nov	14-Nov	depth interpolated			-7.9	157242.26	375241.84	na	na	na	na	na	na	na	na
na	na	66	14-Nov	14-Nov	14-Nov	14-Nov	depth interpolated			-6.0	157141.72	375241.28	na	na	na	na	na	na	na	na
na	na	67	14-Nov	14-Nov	14-Nov	14-Nov	depth interpolated			-6.3	157191.22	375289.84	na	na	na	na	na	na	na	na
na	na	68	14-Nov	14-Nov	14-Nov	14-Nov	4:21 PM	7.3	0.06	-7.2	156698.47	376215.15	na	na	na	na	2.5	0.35	0.94	3.10
na	na	69	14-Nov	14-Nov	14-Nov	14-Nov	4:25 PM	7.1	0.16	-6.9	156606.02	376248.24	na	na	na	na	2.5	0.35	0.94	3.07

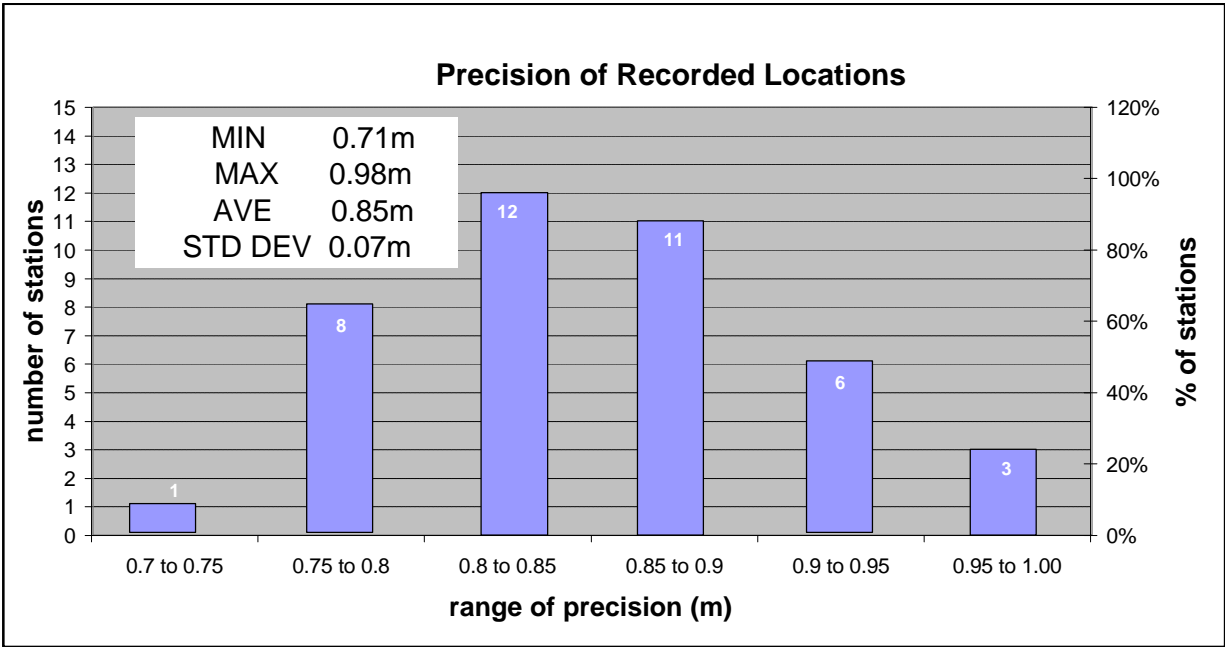
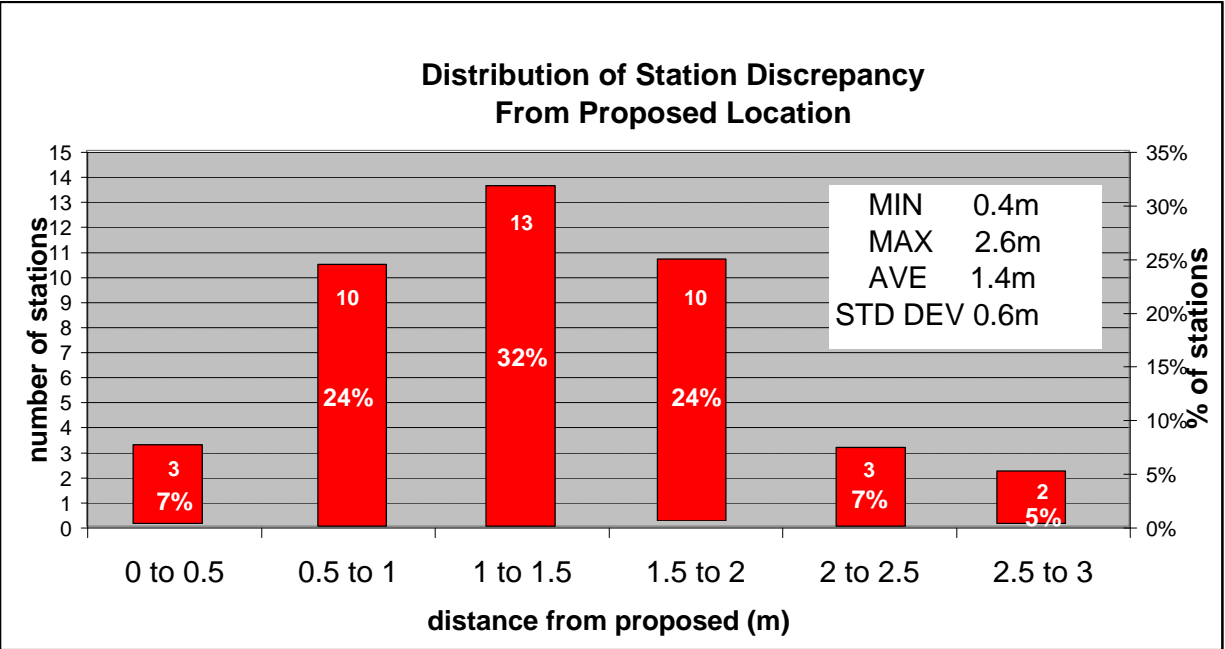
NOTES:
na = no proposed coordinates given.
Stations 60 through 67 were measured halfway between established stations. Stations 68 and 69 were located using approximate directions provided in the field by TiNUS, Inc.
Similar to Stations 6 through 46, the locations of the anchored stations 68 and 69 were recorded using a Trimble™ Pro XR GPS receiver.
Depths of stations 60 through 67 were interpolated between depth from adjacent station depths using AutoCAD™ Land Development.
Newport tide elevations from preliminary observations from NOAA station 8452660 on southeast end of Coasters Island. These data have not been verified by NOAA.

2B. Station Position Discrepancy

cumm. number of stations	cumm.% of stations	discrepancy range	number of stations	% of stations	discrepancy range
#	%	meters	#	%	meters
3	7%	% < 0.5	3	7%	0 to 0.5
13	32%	% < 1	10	24%	0.5 to 1
26	63%	% < 1.5	13	32%	1 to 1.5
36	88%	% < 2	10	24%	1.5 to 2
39	95%	% < 2.5	3	7%	2 to 2.5
41	100%	% < 3	2	5%	2.5 to 3
			41	100%	
feet	meters				
4.4	1.4	AVE	discrepancy from proposed		
2.0	0.6	STD DEV	discrepancy from proposed		
8.5	2.6	MAX	discrepancy from proposed		
1.2	0.4	MIN	discrepancy from proposed		

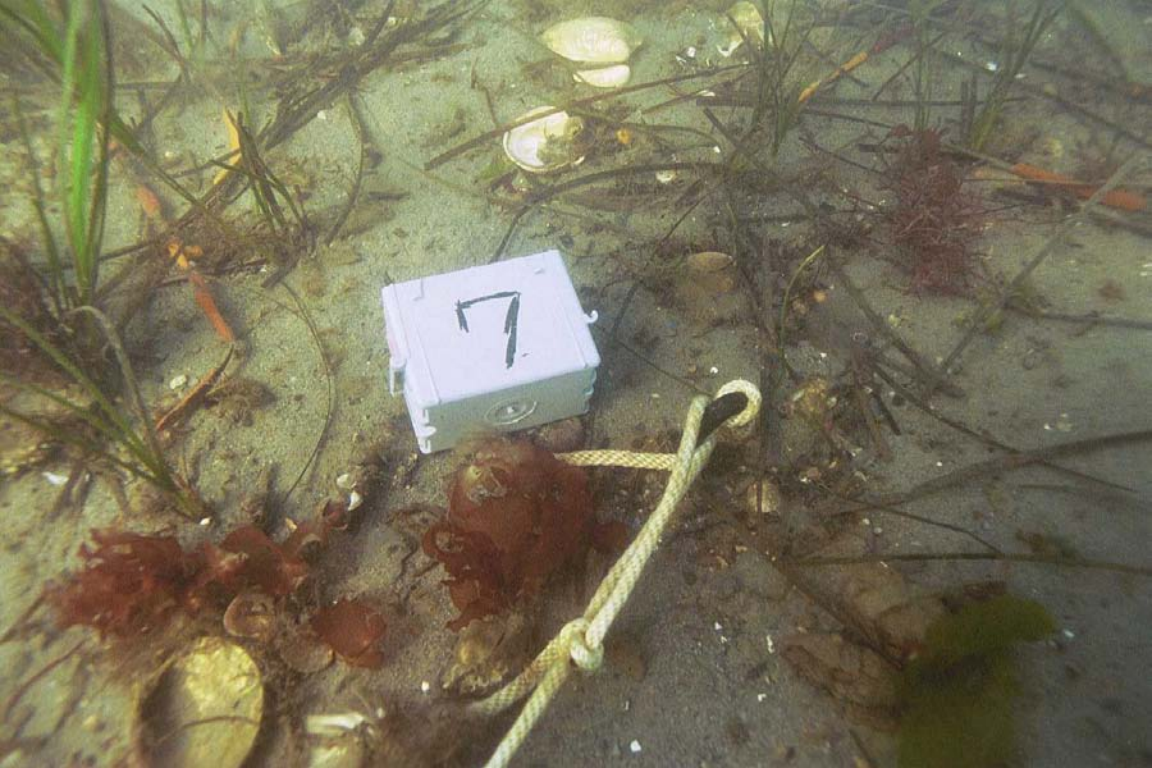
2C. Precision of Position Fixes

% of stations	cumm. number of stations	total number of stations	% of stations	range of precision
%	#	#	%	meters
7%	1	1	2%	0.7 to 0.75
24%	9.00	8	20%	0.75 to 0.8
32%	21.00	12	29%	0.8 to 0.85
24%	32.00	11	27%	0.85 to 0.9
7%	38.00	6	15%	0.9 to 0.95
5%	41.00	3	7%	0.95 to 1.00
		41	100%	
	0.85	2.80	AVE	Horiz Prec
	0.07	0.22	STD DEV	Horiz Prec
	0.98	3.22	MAX	Horiz Prec
	0.71	2.32	MIN	Horiz Prec



APPENDIX C
PHOTOGRAPHS OF SAMPLE STATIONS









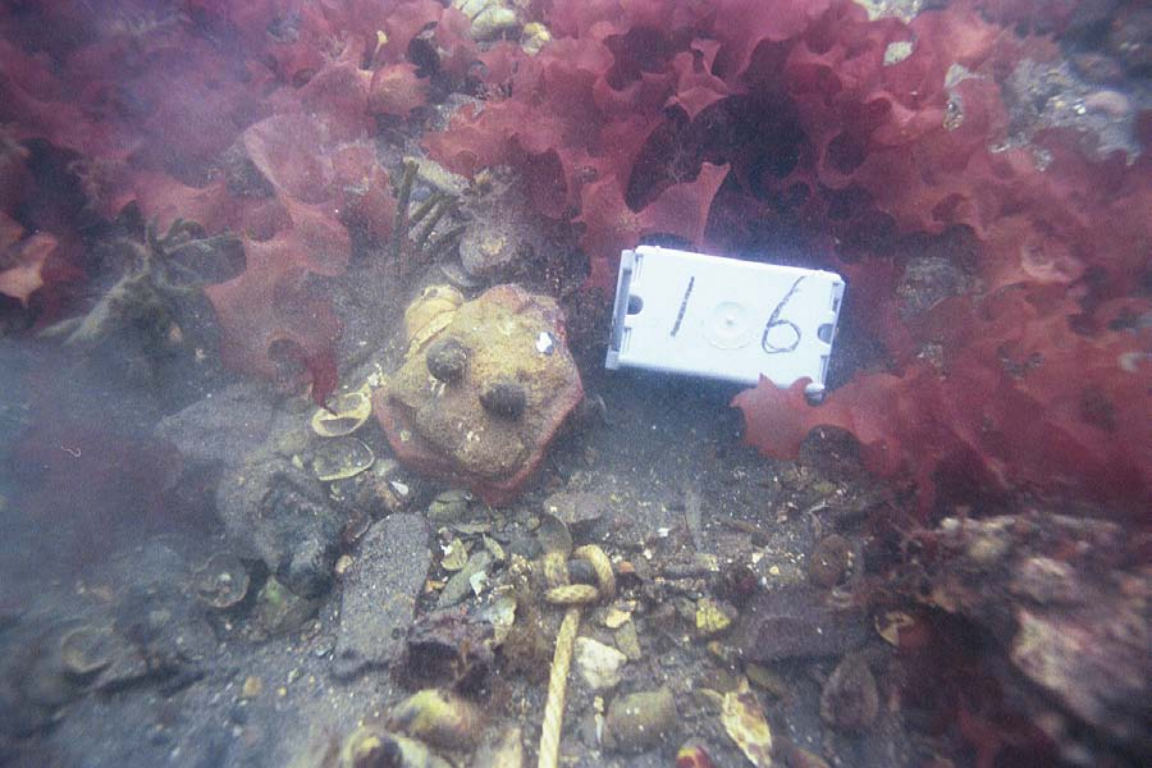












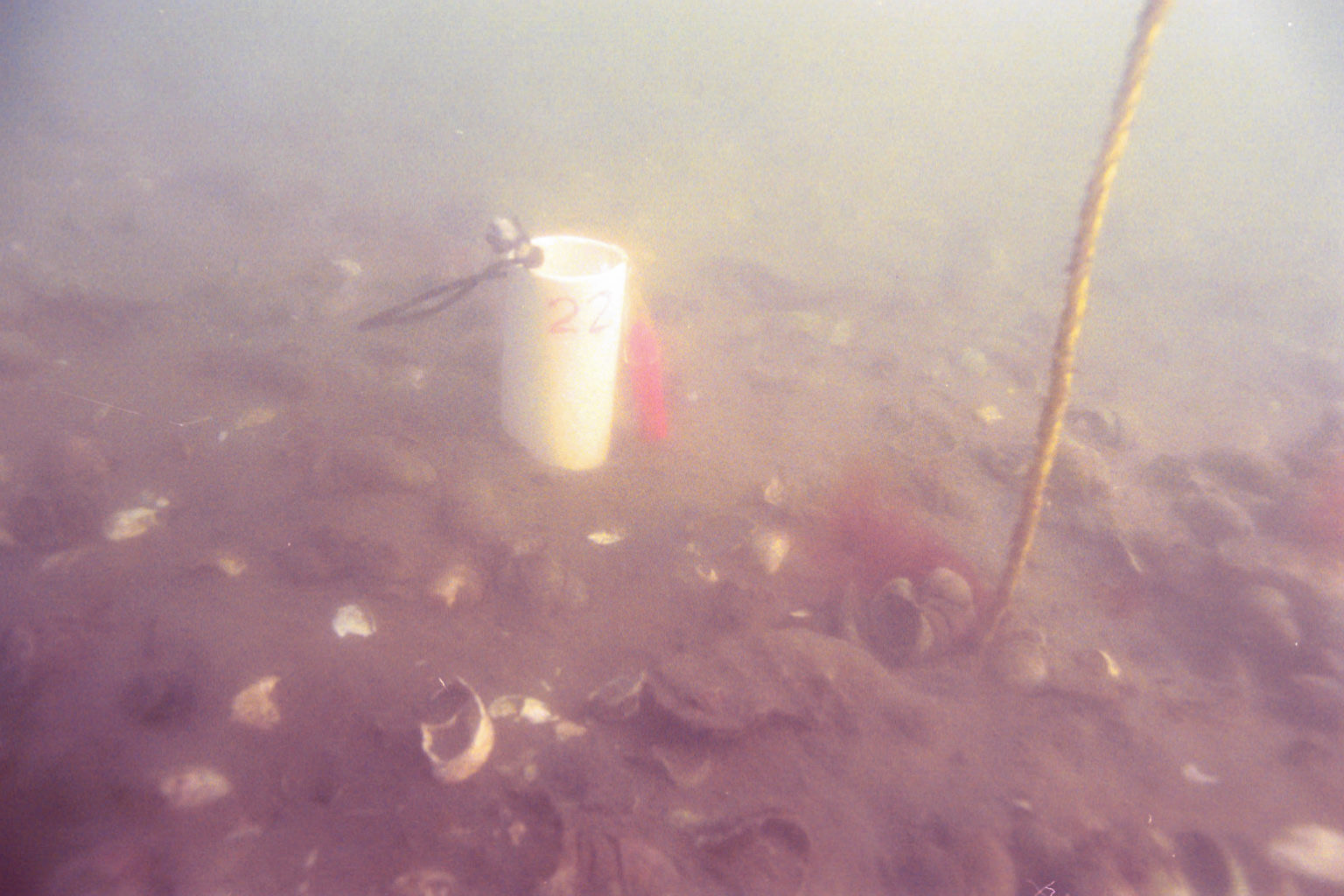


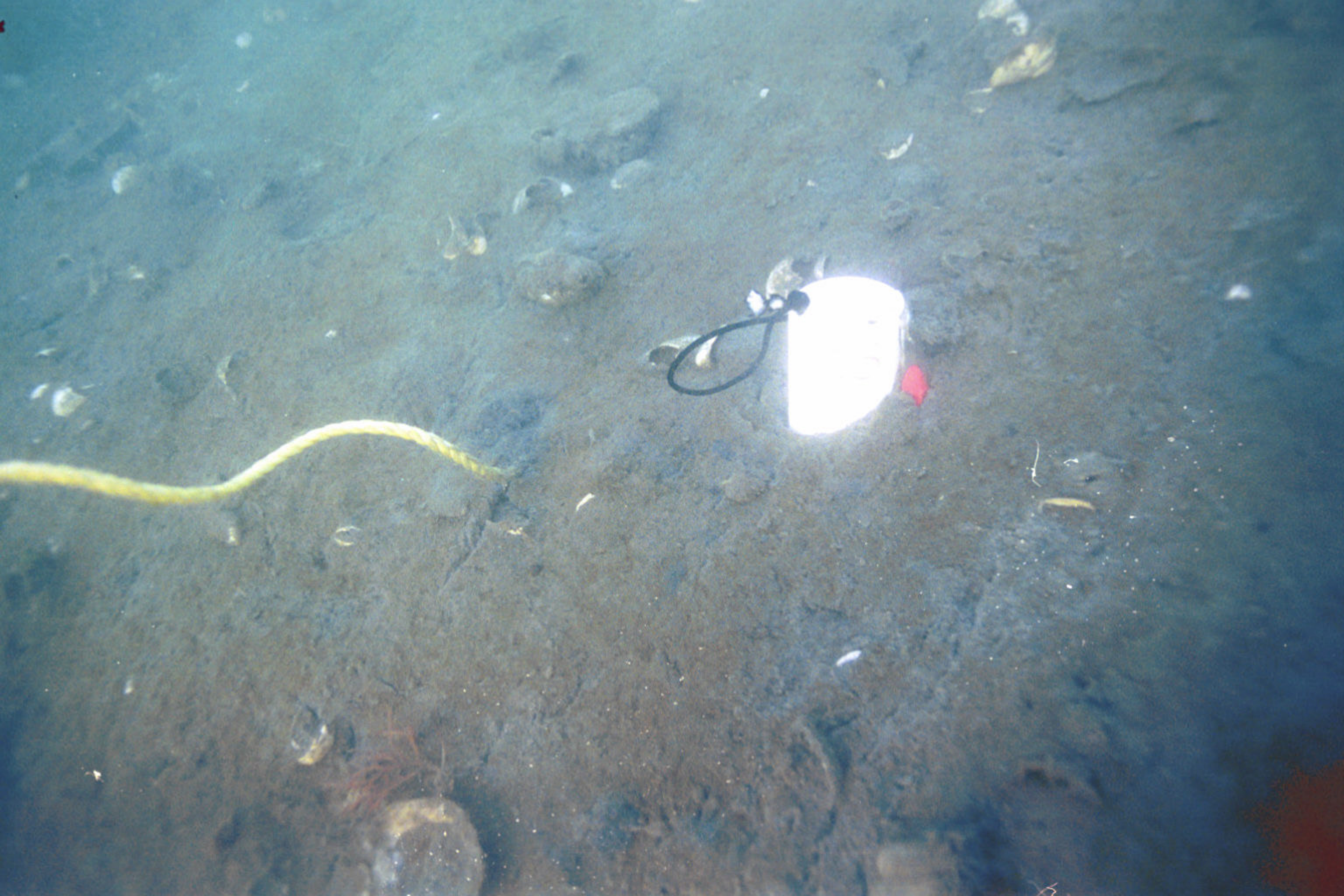























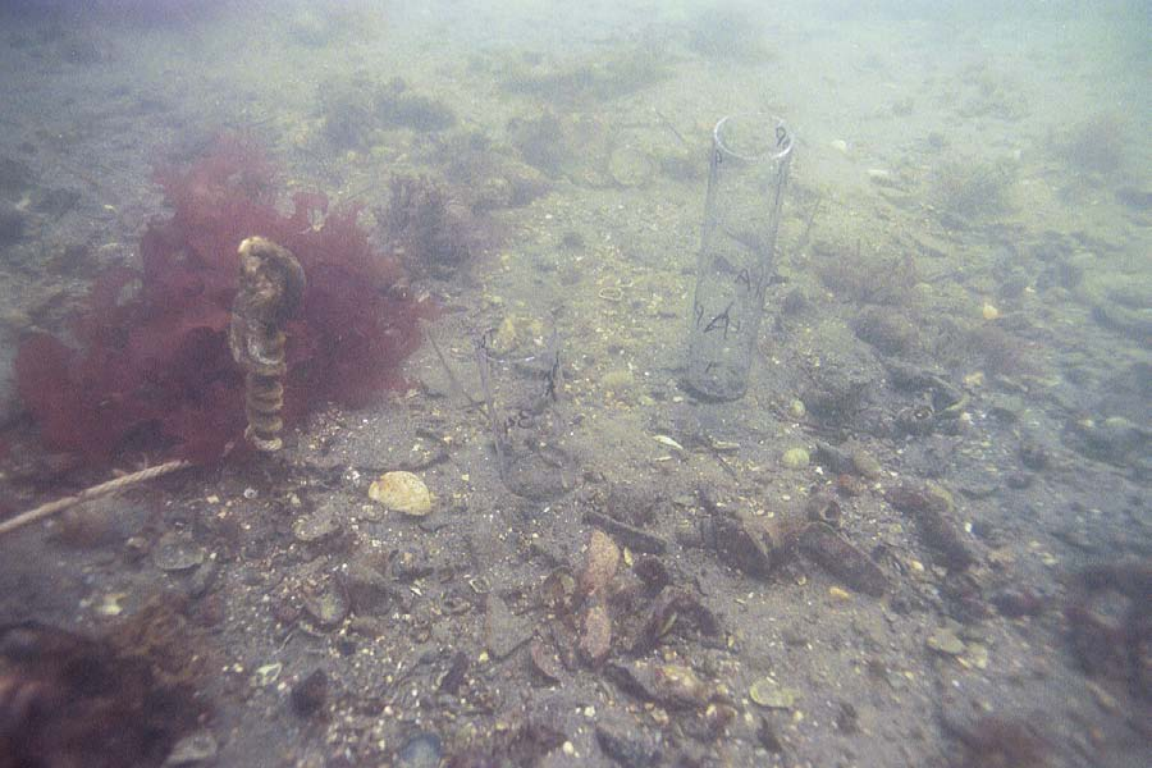
31

An underwater photograph showing a white rectangular marker with the number '31' written on it in black marker. The marker is placed on a sandy seabed. To the left of the marker is a large, branching, brownish-yellow coral structure. To the right and in front of the marker are several large, smooth, light-colored rocks or shells, some of which are partially covered by dark red seaweed. A white rope is visible in the lower right corner, extending towards the rocks. The water is slightly murky, and the overall scene appears to be a marine research or survey site.



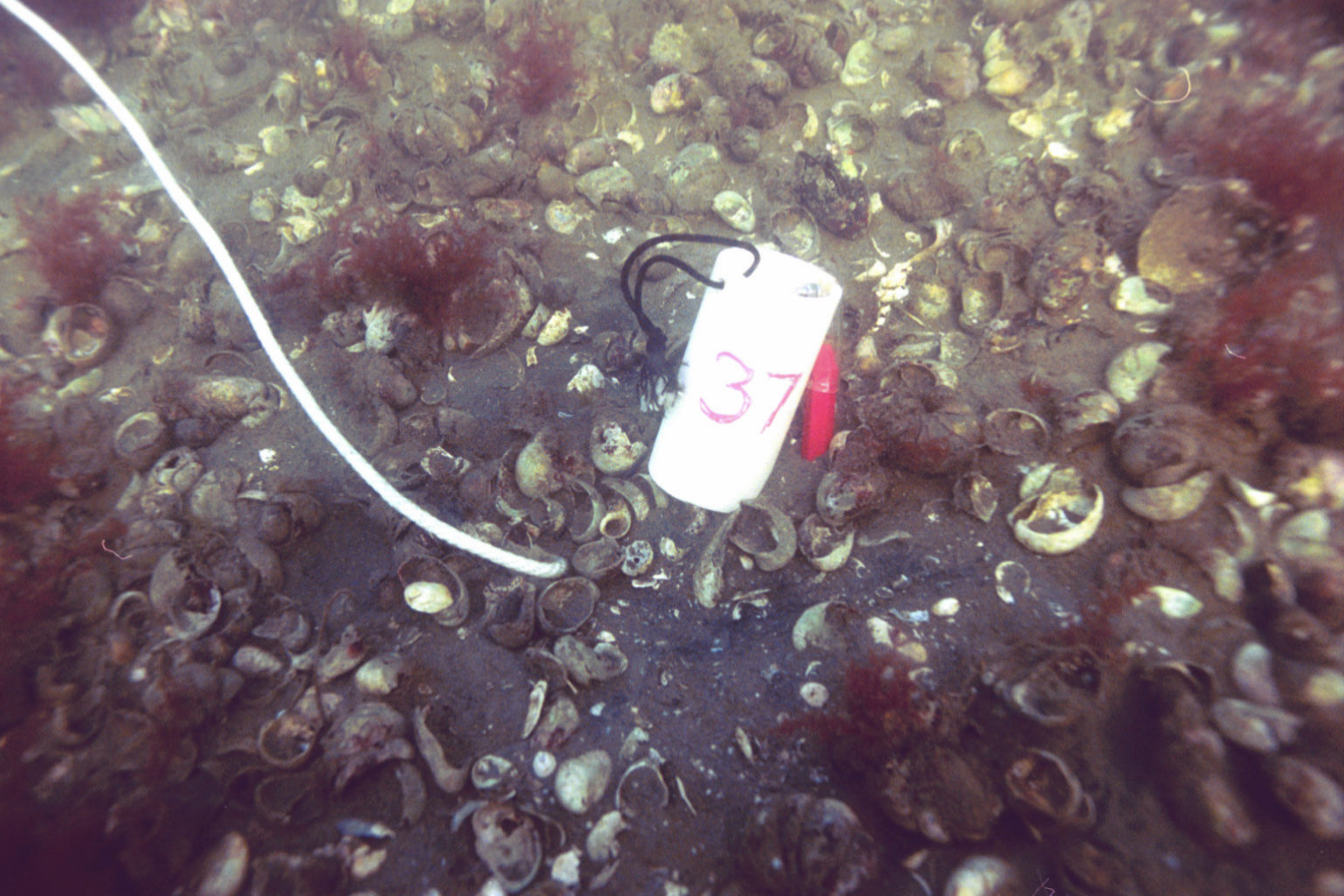


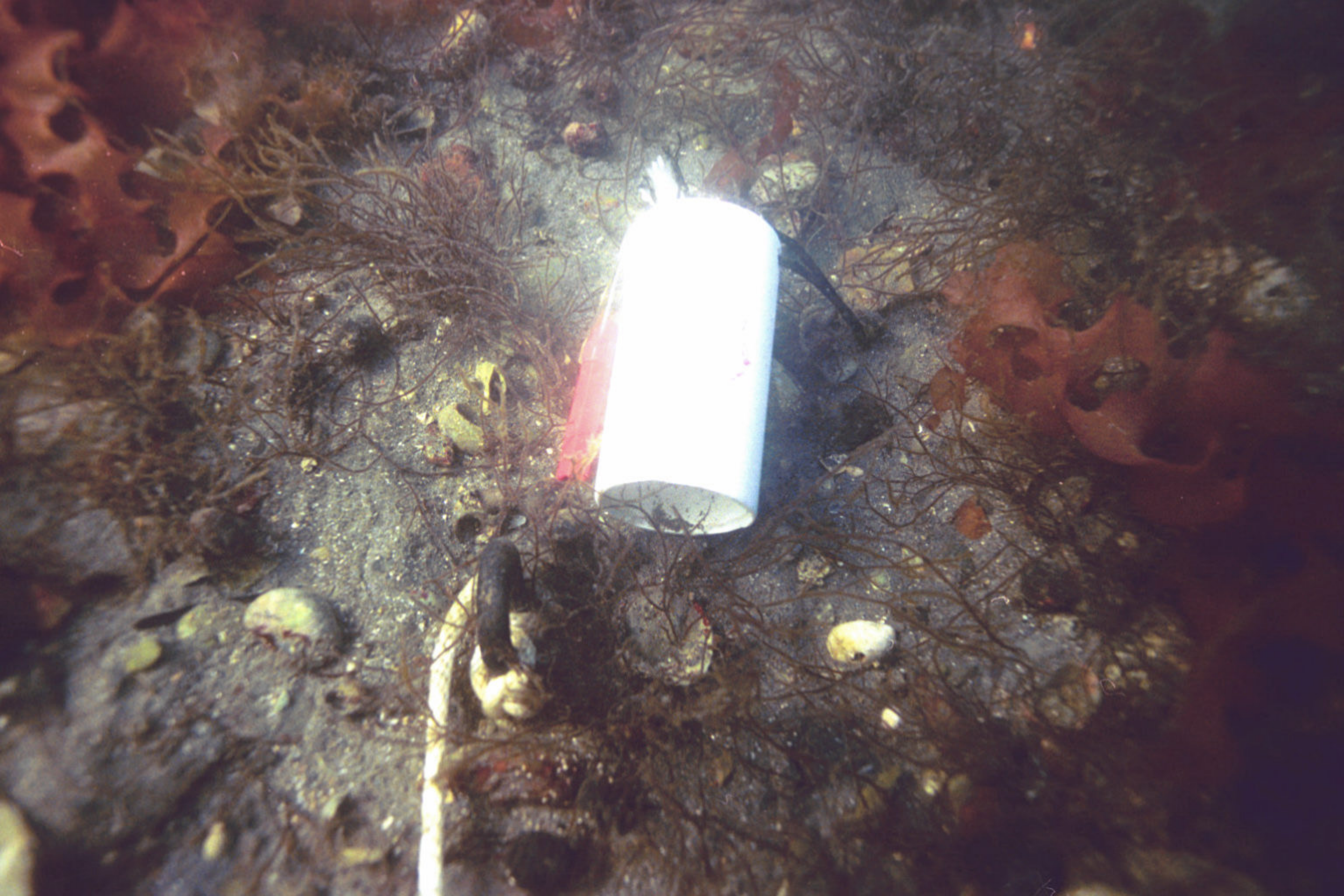
34













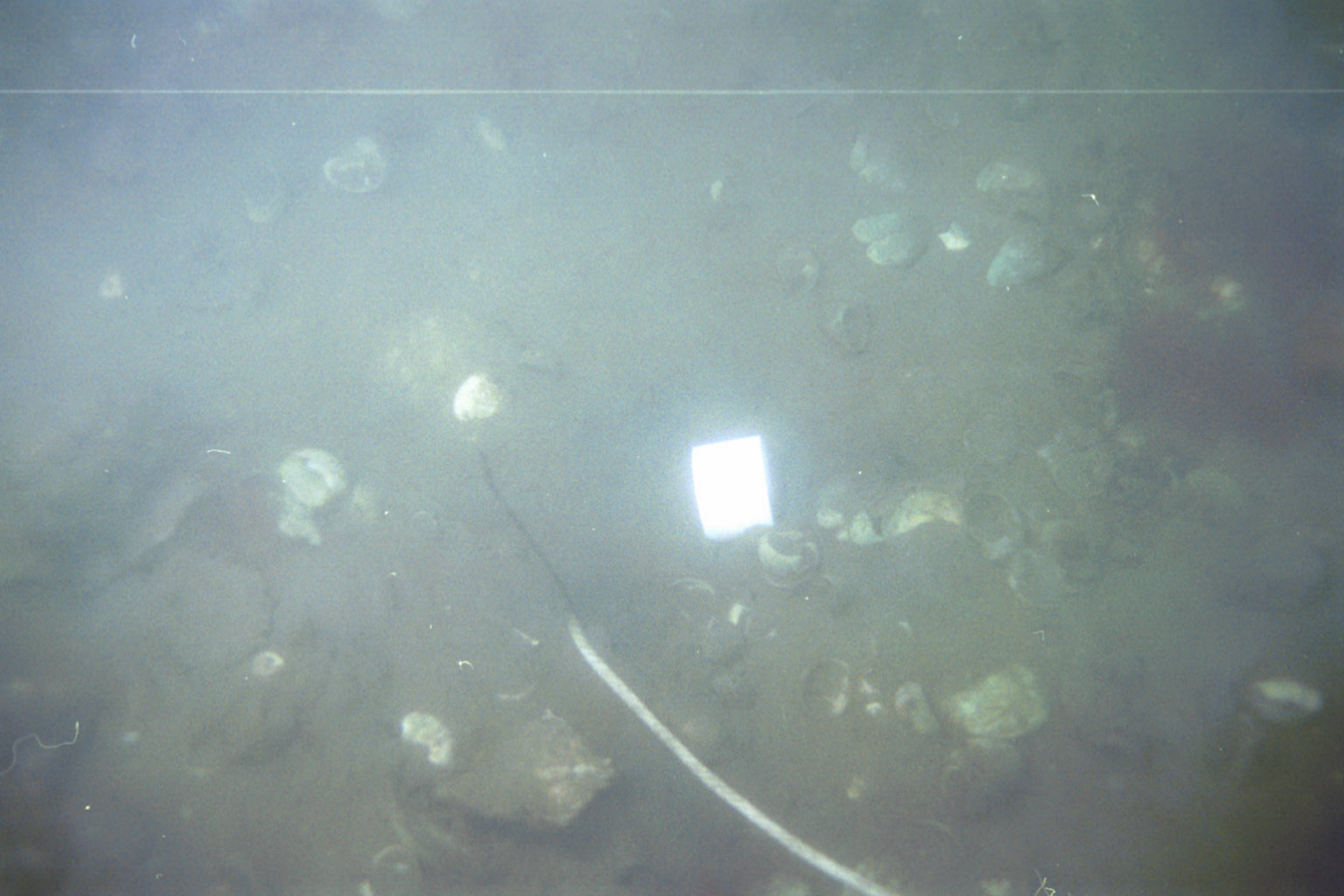












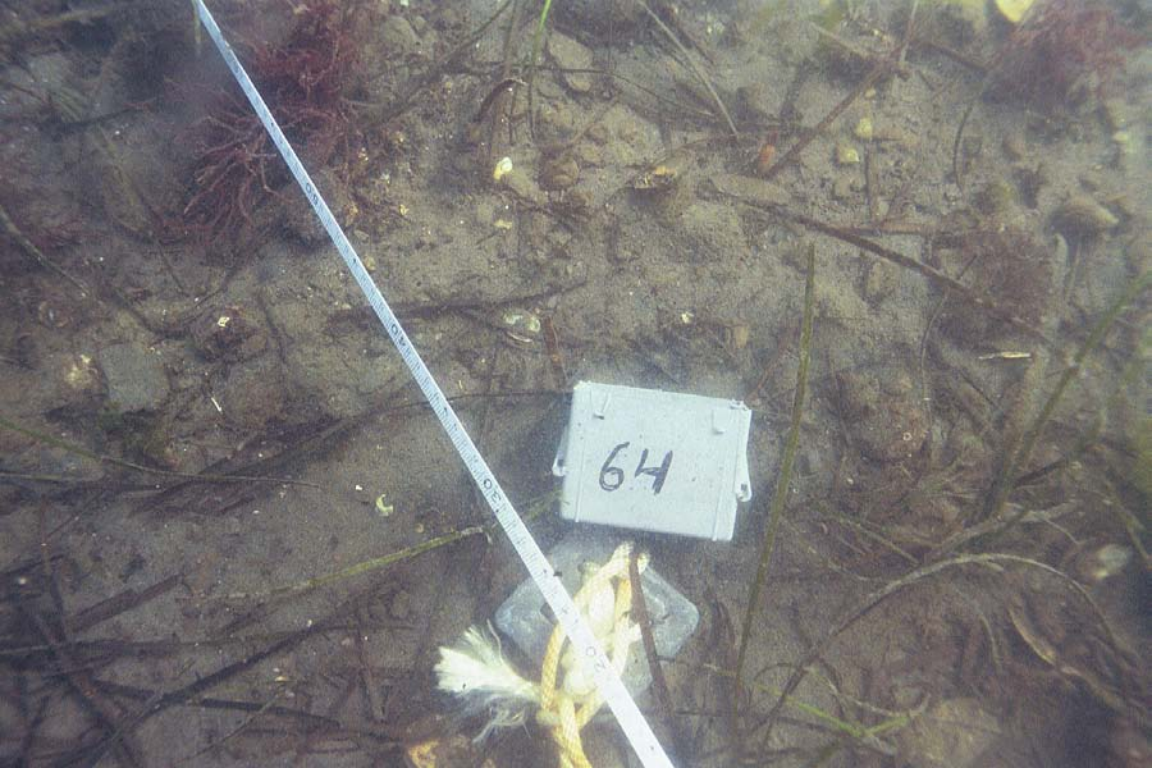


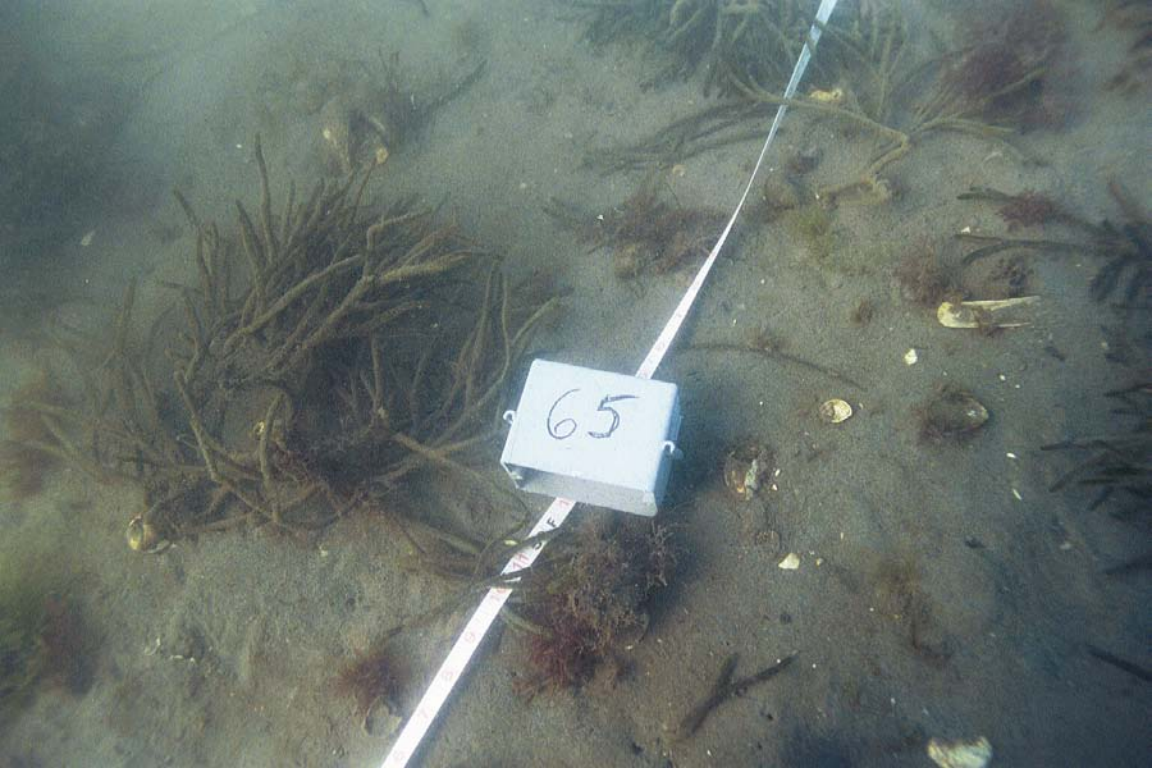




62

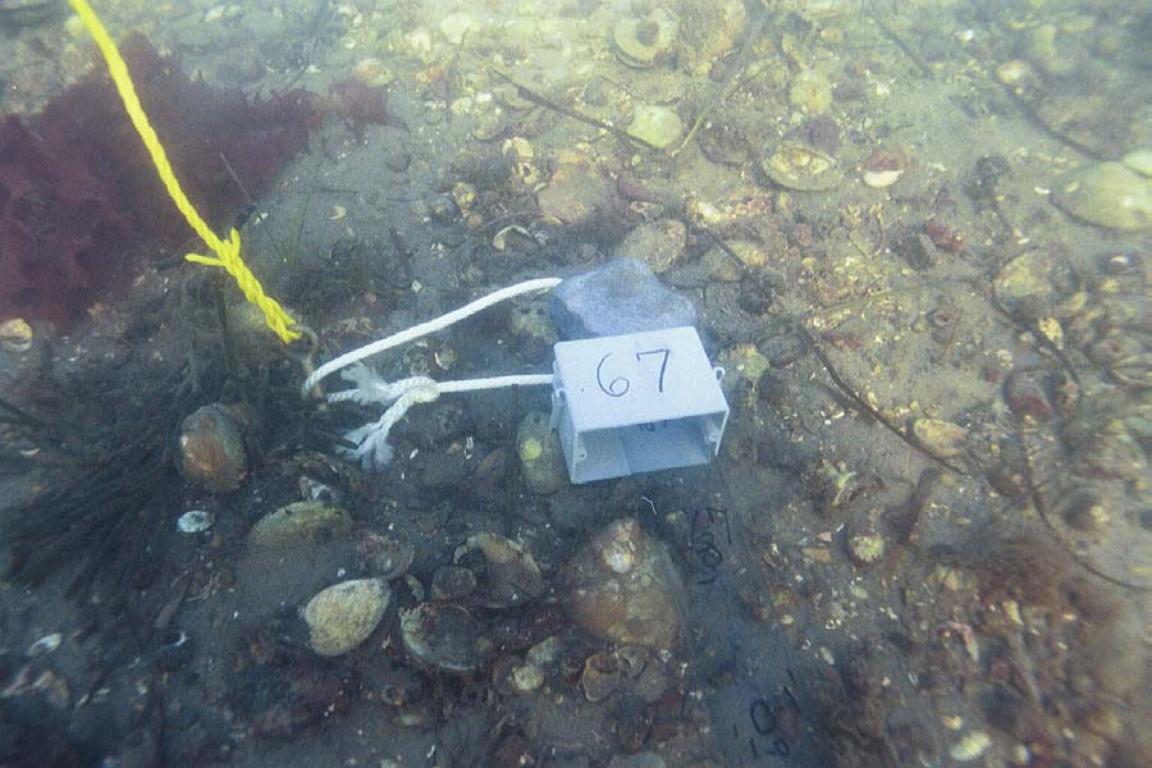






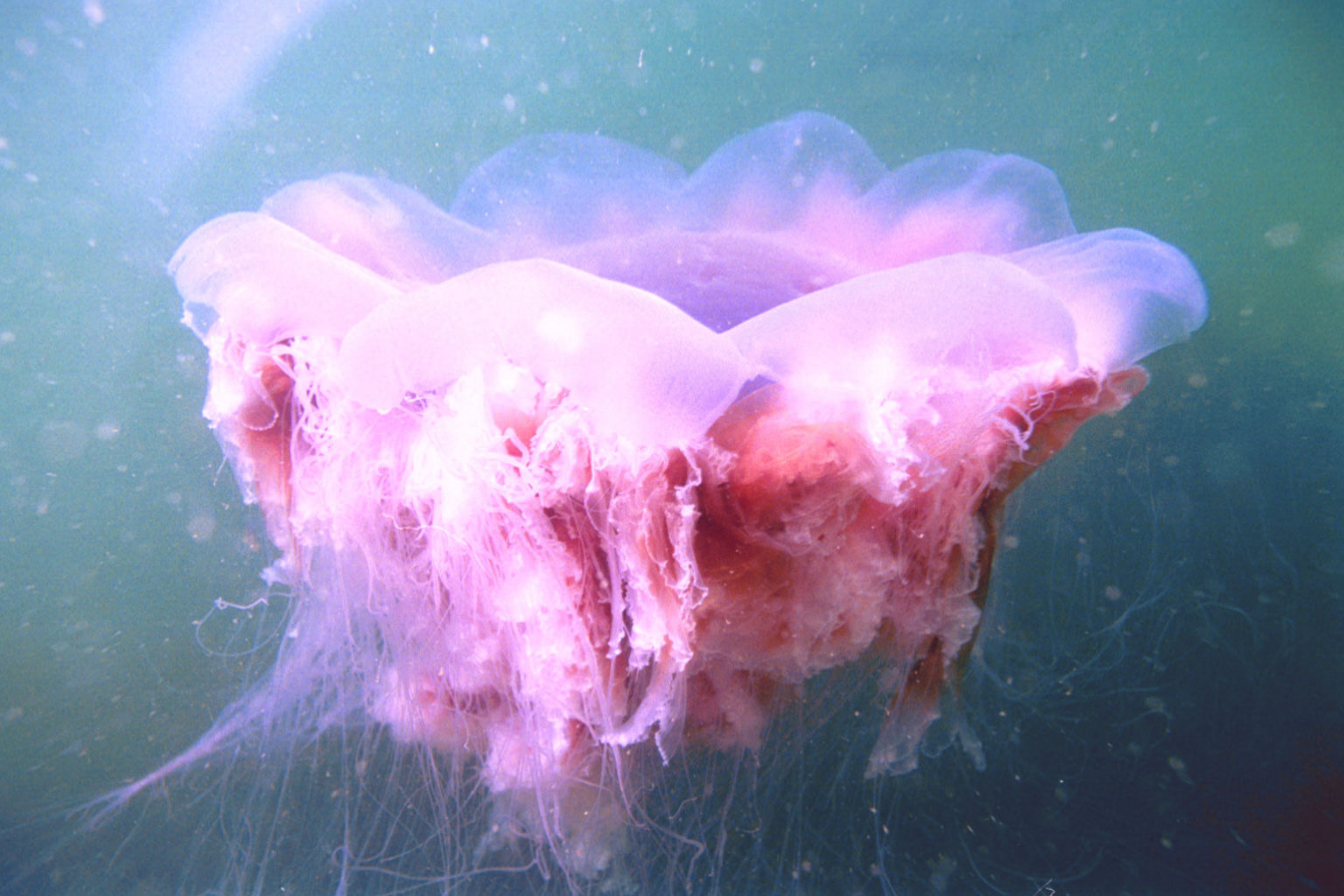
65







69











APPENDIX D

SAMPLE LOG SHEETS, SEDIMENT SAMPLES COLLECTED NOVEMBER 2001



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK FINE SAND
TRACE SILT - (SOME ROOTS in SAMPLE)

12 PEN 2 REC

ADD BOTH REC TOGETHER

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF - SD - 407 - 0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0 - 0.5 feet
Sample Date & Time: 11 / 12 / 01 1230 hours Dup _____ hours
Sampler(s): DAVE SIEFKEN & STEVE PARKER

Data Recorded By: [Signature]
Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank *
☒ Sediment ☐ Rinsate Blank *
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK FINE SAND, TRACE SILT

SAMPLE DATA/REMARKS: 12" PEN ; 7" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD - 408 - 0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0.0-5 feet
Sample Date & Time: 11/17/01 1200 hours Dup 07 hours
Sampler(s): DAVE STEPHEN

Data Recorded By: [Signature] Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☒ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK, GRAY to BLACK

FINE SAND w/ SILT - TRACK ROCKS

SAMPLE DATA/REMARKS: 12 PEW ; 8 REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals

DUP 07



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520Sample ID: OFF-SD-404-0006

QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic HammerDepth Sampled: 0-0.5 feetSample Date & Time: 11/19/01 0945 hours Dup _____ hoursSampler(s): DAVE SIEFREN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

0

ppm

TYPE OF SAMPLE: (Check all that apply)

☐ Soil☐ Trip Blank*☒ Sediment☐ Rinsate Blank*☐ Lagoon/Pond☐ Field Duplicate collected☐ Grab☐ Other (Specify): _____Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK, GRAY to BLACK SAND, fine med4 COARSE w/ SILT - SOFTSAMPLE DATA/REMARKS: 12 PEN; 9 REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs

Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-50-410-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11/14/01 1020 hours Dup _____ hours
Sampler(s): _____

DAVE SIEFEN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

0

ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACKSAND, FINE, MED. & COARSE, PEBBLES
ROOT FIBEROUS ROOTS, FRASOME SILT

SAMPLE DATA/REMARKS: _____

12" PEN; 8" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) FINE DARK GRAY to BLACK
MUCK WITH FINE SAND, - SHELLS
PRESENT

SAMPLE DATA/REMARKS: H. S. 0000

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-412-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0-0.5 feet
 Sample Date & Time: 11/13/01 0930 hours Dup _____ hours
 Sampler(s): DAVE SIEFKEN

TYPE OF SAMPLE: (Check all that apply)

<input type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Data Recorded By: [Signature]
 Signature

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) GRAY SAND, SM. M. & L. COARSE REBBLES
SHELLS & A FEW 1/4 in DIAM ROCKS

PID/OVA Monitor Reading: 0 ppm

SAMPLE DATA/REMARKS: _____

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____
	<i>MS / MSD</i>

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) GRAY SAND, F.M. ^{COARSE} ~~fine~~ Pebbles & SHELLS w/ SOME ROCK

SAMPLE DATA/REMARKS: _____

Tt NUS Form 0005A



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152-0510/0520
QC Information: MS/MSD 2 (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input checked="" type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input checked="" type="checkbox"/> Other (Specify): <u>MS/MSD #2</u>

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SAND + GRAVEL (SW/GW) TRACE BRICK FRAGMENTS.

SAMPLE DATA/REMARKS: HAD TO REMOVE BORDER'S, BRICK, CONCRETE RUBBLE TO GET @ SAMPLE
SITE SED. BELOW.
NOTE: MANY SMALL CRAB'S LIVING IN/AROUND SED. IN THIS
LOCATION.

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-415-0006

Tetra Tech, NUS Job No./PMS 4152-0510/0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 11.5-20.5 feet
Sample Date & Time: 11/12/01 0900 hours Dup _____ hours
Sampler(s): DAVE SIEFKE

TYPE OF SAMPLE: (Check all that apply)

☒ Soil
☒ Sediment
☐ Lagoon/Pond
☐ Grab
☐ Trip Blank*
☐ Rinsate Blank*
☐ Field Duplicate collected
☐ Other (Specify): _____

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DK. GRAY to BLACK FINE SAND
WITH SILT

SAMPLE DATA/REMARKS: 12" PEN ; 9" RECOVERY.

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD-416-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0.5 feet
Sample Date & Time: 11/19/01 1145 hours Dup _____ hours
Sampler(s): _____

DAVE STEPHEN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

0

ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK FINE
SAND TRACE OF SILT

SAMPLE DATA/REMARKS: _____

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHsMetals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD - 417 - 0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11/13/01 1330 hours Dup _____ hours
Sampler(s): DAVE SIEFKEN

Data Recorded By: [Signature] Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) GRAY SAND FINE WITH
TRACE OF SILT

SAMPLE DATA/REMARKS: _____

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-418-000

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0.040.5 feet
 Sample Date & Time: 11/8/01 1525 hours Dup _____ hours
 Sampler(s): T. DORRAN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) BLACK GRANULY FINE SAND. MOSTLY FINE POORLY GRAINED SAND, SOME SUBANGULATED F-C GRAUL, TRACE SILT, TRACE SHELS.

SAMPLE DATA/REMARKS: Pen. = 12"; RZ = 11"

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: 02 (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input checked="" type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input checked="" type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY - BLACK FINE POORLY GRAINED SAND - (SP) TRACE SILT.

SAMPLE DATA/REMARKS: 643 A = PEN. = 12" ; RCT. = 6.5"
" B = PEN. = 12" ; RCT. = 8.3/4"

[illegible]



TETRA TECHNUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-S1-420-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 00 & 0.5 feet
Sample Date & Time: 11/18/01 1200 hours Dup hours
Sampler(s): T. DUGAN

TYPE OF SAMPLE: (Check all that apply)

<input type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input checked="" type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify): _____

Data Recorded By: T. Dwyer Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY-BLACK. SILTY, FINE POORLY GRAINED SAND. (SP) TRACE SHELL FRAG.

SAMPLE DATA/REMARKS: PEN. = 12"; RGT. = 8 3/4" SLIGHT H₂S ODOR.

[illegible]



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152-0510/0520
QC Information: (MS/MS) ~~DAH/MS/MS~~ (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input checked="" type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input checked="" type="checkbox"/>	Other (Specify): <u>SEE ABOVE</u>

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY - BLACK FINE FORTLY GRADED SAND. (SP) TRACES SILT, TRACE
SHALL FRAG'S.

SAMPLE DATA/REMARKS: PEN. = 12"; REF. = 10.5" LIGHT H₂S odor.

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-422-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0.0 to 0.5 feet
 Sample Date & Time: 11/8/01 1235 hours Dup _____ hours
 Sampler(s): T. Dorgan

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: T. Dorgan Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY - BLACK FINE POORLY SORTED SAND. (SP) TRACE SILT, TRACE SHELL FRAGS

SAMPLE DATA/REMARKS: PEN. = 12"; RES. = 7.5" LIGHT H₂S ODOR

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-423-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0.0 to 0.5 feet
 Sample Date & Time: 11/8/01 1250 hours Dup _____ hours
 Sampler(s): T. DOREGAN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: T. Doregan Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY TO BLACK
FINE SAND AND SILT. ~50% EACH.
TRACE BI-VALVE FRAGMENTS.

SAMPLE DATA/REMARKS: PEN. = 12" ; RES. = 12" STRONG H₂S ODOR

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-424-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0.5-1.0 feet
Sample Date & Time: 4/13/01 0845 hours Dup _____ hours
Sampler(s): DAVE SIEFKE

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Data Recorded By: [Signature]
Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) GRAY FINE SAND, WITH
SHELLS, ROCK & PEBBLES
TRACE OF SILT

SAMPLE DATA/REMARKS: _____

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520Sample ID: OFF-SD-425-0006

QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic HammerDepth Sampled: 0.05 feetSample Date & Time: 11/13/01 1300 hours Dup _____ hoursSampler(s): DAVE SIEFREN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) GRAY SAND - F.M. (COARSE, &SHELLS, PEBBLES / ROCKS)

SAMPLE DATA/REMARKS: _____

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: GFF SD - 426-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11/14/01 1530 hours Dup _____ hours
Sampler(s): _____

DAVE SIEFREN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK, GRAY to BLACK
FINE SAND w/ ORGANIC SILT
FIBEROUS ROOTS

SAMPLE DATA/REMARKS: 12 PEN: 7.5 REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-427-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11 / 12 / 01 1330 hours Dup _____ hours
Sampler(s): DAVE SIEFREN & STEVE PARKER

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK FINE SAND
TRACE SILT

SAMPLE DATA/REMARKS: 12" PEN; 9" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHsMetals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-427 1324

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0.5 2.0 feet
 Sample Date & Time: 11/12/01 1335 hours (Dup X hours 1335)
 Sampler(s): DAVE SIEFKE 1 STEVE PARKER

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK FINE SAND
TRACE OF SILT SOME ROCK 1/2" DIAM.

SAMPLE DATA/REMARKS: 12" PEAV; 12" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals

OFF-SD-DUP-04



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520Sample ID: OFF SD - 482 - 0006

QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic HammerDepth Sampled: 0 - 0.5 feetSample Date & Time: 4/14/01 1610 hours Dup _____ hoursSampler(s): DAVE SIEFREN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

☐ Soil☐ Trip Blank*☒ Sediment☐ Rinsate Blank*☐ Lagoon/Pond☐ Field Duplicate collected☐ Grab☐ Other (Specify): _____Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK BLACK, MUCKw/ SOME FINE SAND, PLANTMATERIAL PRESENT, ROOTED IN SOILTRACE ROCKSAMPLE DATA/REMARKS: 12" - 2.5" RRC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs

Metals

SENT ONLY PAH !



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD - 482 - 1824
(28)

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: _____ feet
Sample Date & Time: 1/1 1615 hours Dup _____ hours
Sampler(s): _____

DAVID SIERKEW

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

0

ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY GRAY to BLACK
FINE to MED. SAND / SILTY

SAMPLE DATA/REMARKS: _____

12" PEN, 12" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-429-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0.5 feet in
 Sample Date & Time: 11/12/01 1200 hours Dup _____ hours
 Sampler(s): DAVE SIKKEN & STEVE PARKER

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

0

ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK FINESAND, TRACE SILT

SAMPLE DATA/REMARKS: 0.5" PEN - 12 X 0.5" PEN - REFUSAL = 0.5" REC.

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-430 0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0 - 0.5 feet
 Sample Date & Time: 11 / 12 / 01 1130 hours Dup _____ hours
 Sampler(s): DAVE SIEFREN & STAKE PARKER

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: [Signature] Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK FINE SAND
WITH TRACE SILT

SAMPLE DATA/REMARKS: 12" PEN ~ 10" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals

SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet,
Etc.) DARK GRAY to BLACK FINE
SAND, TRACE SILT

SAMPLE DATA/REMARKS: 12" PEW 12" REC

[illegible]



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet,
Etc.) DARK GRAY to BLACK FINE SAND
Trace SILT

PID/OVA Monitor Reading: 0 ppm

SAMPLE DATA/REMARKS: 12" PEN ; 7.5 REC

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520Sample ID: OFF-SD-431-1824

QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0.5 - 2.0 feet
Sample Date & Time: 11/12/01 1305 hours Dup _____ hours
Sampler(s): DAVE SIEFREN & STEVE PARKER

TYPE OF SAMPLE: (Check all that apply)

<input type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: C ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK FINE SAND
with TRACE OF SILT

SAMPLE DATA/REMARKS: 12" PEN ; 12 REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-432-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: _____ feet
Sample Date & Time: 11 / 13 / 01 1630 hours Dup X hours Dup-05
Sampler(s): DAVE SIEPKE

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☒ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: RO SL Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) 8 GRAY SAND, f. m. ^{coarse} w/ Pebbles and Rock

SAMPLE DATA/REMARKS: _____

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals

Dup - 05



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-432-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5 2.0 feet
Sample Date & Time: 11 / 13 / 01 1040 hours Dup _____ hours
Sampler(s): DAVE SIEFLEN

TYPE OF SAMPLE: (Check all that apply)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Soil | <input type="checkbox"/> Trip Blank * |
| <input checked="" type="checkbox"/> Sediment | <input type="checkbox"/> Rinsate Blank * |
| <input type="checkbox"/> Lagoon/Pond | <input type="checkbox"/> Field Duplicate collected |
| <input type="checkbox"/> Grab | <input type="checkbox"/> Other (Specify): _____ |

Data Recorded By: DS Signature

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) GRAY SAND, FINE, TRACK
SILT, FEW ROCKS

PID/OVA Monitor Reading: 0 ppm

SAMPLE DATA/REMARKS: _____

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



SAMPLE LOG SHEET - SOLID PHASE

Sample ID: off - SD - 433 - 0006

QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11/12/01 0930 hours Dup. hours
Sampler(s): DAVE STEFFEN

Data Recorded By: R. L. L. Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input checked="" type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY TO BLACK FINE

SAND, TRACE SILT

SAMPLE DATA/REMARKS: 12" PEN; 8 REC.

[illegible]

SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY TO BLACK FINE SAND
TRACE SILT, FEW ROCKS 1/2" - 1" DIAMETER

SAMPLE DATA/REMARKS: 12" PEN; 12" REC

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD- 434-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 6/14/01 1445 hours Dup 08 hours Dup 08
Sampler(s): DAUR SIEFREN

Data Recorded By: [Signature] Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input checked="" type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK, GRAY to BLACK, FINE
SAND w/ SILT
SOFT

SAMPLE DATA/REMARKS: 12" PEN ; 7.5 REC

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		DUP 08
Metals		



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

TYPE OF SAMPLE: (Check all that apply)

Sampler(s): DAVID SIEFKEN

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify):

Data Recorded By: _____ Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SA DARK GRAY to BLACK
SAND, FINE to MEDIUM GRAIN
w/ ~~SHALL~~ BROKEN SHALE TRACK ROCK

SAMPLE DATA/REMARKS: 12" PEW, 12 REC

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-435-0006

Tetra Tech, NUS Job No./PMS 4152-0510/0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 12/12/01 1000 hours Dup — hours
Sampler(s): DAVE SIEFREN

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Data Recorded By: [Signature]
Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK SAND (FINE)
TRACE SILT

SAMPLE DATA/REMARKS: 12" PEN; 9' REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-435-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0.5-2.0 feet
Sample Date & Time: 11/12/01 1005 hours Dup — hours
Sampler(s): DAVE SIREHEN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: DP8L Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY TO BLACK FINE SAND
TRACE SILT, FEW ROCKS ~ 0.5" x 1.0"
DIAMETER

SAMPLE DATA/REMARKS: 12" DEN; 12" REL

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-436-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11/12/01 1030 hours Dup X hours Dup 03
Sampler(s): DAVE SIEFREN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: DPS Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK COARSE SAND
SILT, SHELLS, SOME ROCK, 1" DIAMETER

SAMPLE DATA/REMARKS: USED H.A. / DUP-03

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-436-1824

Tetra Tech, NUS Job No./PMS 4152-0510/0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 2.0 feet
Sample Date & Time: 11/12/01 1040 hours Dup ✓ hours DUP-03
Sampler(s): DAVE SIEFREN + STEVE DAZNER

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☒ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: [Signature] Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK COARSE SAND
SILT, SHELLS w/ SOME ROCK 1-2" DIAMETER

SAMPLE DATA/REMARKS: USED H.A.

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals

DUP-03



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SID-437-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0.0-0.5 feet
Sample Date & Time: 11/8/01 1535 hours Dup _____ hours
Sampler(s): _____

T. Dargatzis

Data Recorded By: _____

T. Dargatzis

Signature

PID/OVA Monitor Reading: _____ ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY FINE SAND .. SP
TRACE SILT.

SAMPLE DATA/REMARKS: PEN. = 12" ; REZ. = 11.5"

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-437-000 @ 1624

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 1.5 2.0 feet
 Sample Date & Time: 11/8/01 1545 hours Dup _____ hours
 Sampler(s): T. Dorgan

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: T. Dorgan Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY FINE SAND, TRACED SILT. (SP)

SAMPLE DATA/REMARKS: Pen = 12"; R22. = 12"

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY SAND. FINE, TRACE SILT. TRACE FINE GRAVEL. (SP)

PID/OVA Monitor Reading: _____ ppm

SAMPLE DATA/REMARKS: PerO. = 12"; REF. = 8 1/4"

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-438-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 1.5-2.0 feet
 Sample Date & Time: 11/8/01 1600 hours Dup _____ hours
 Sampler(s): T. Dorgan

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: T. Dorgan Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK-MED. GRAY FINE SAND.

SP. TRACE PHYLITE GRAIN FRAGMENTS
(F.C) GRAIN SIZE.

SAMPLE DATA/REMARKS: PAU = 12" ; REZ. = 12"

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-439-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0.0 - 0.5' feet
Sample Date & Time: 10 / 30 / 01 1550 hours Dup 1545 hours
Sampler(s): K. Long, S. Parker

Data Recorded By: K. Long Signature

PID/OVA Monitor Reading: _____ ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) coarse sand and gravel w/ shells

SAMPLE DATA/REMARKS: _____

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs	N/A	
Metals	N/A	



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: DUP of OFF-SD-439-0006 (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input checked="" type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input checked="" type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab		Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) coarse sand and gravel w/ shells

SAMPLE DATA/REMARKS: _____

[illegible]



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) coarse sand and gravel w/ silt

SAMPLE DATA/REMARKS:

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-439-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5-2.0 feet
Sample Date & Time: 11/13/01 1245 hours Dup _____ hours
Sampler(s): DAVE SIEFREN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank *
☒ Sediment ☐ Rinsate Blank *
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: [Signature] Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) GRAY FINE SAND, TRACE SILT, SHELLS, PEBBLES & ROCK

SAMPLE DATA/REMARKS: _____

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-440-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0.020.5 feet
 Sample Date & Time: 11/18/01 1500 hours Dup _____ hours
 Sampler(s): T. Jordan

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: T. Jordan Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY - BLACK FINE SAND, TRACE SILT (SP)

SAMPLE DATA/REMARKS: PEN. = 12"; REL. = 10.5"

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-440-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 1.5-2.0 feet
 Sample Date & Time: 11/8/01 1520 hours Dup _____ hours
 Sampler(s): T. DORRAN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: T. Dorr Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY - BLACK FINE POORLY
SORTED SAND, TRACE SILT. TRACE SHELL
FRAGS. (SP)

SAMPLE DATA/REMARKS: PEN = 12" : REL. = 12"

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-441-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: METHUS MS/MSD (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0.0-0.5 feet
 Sample Date & Time: 11/8/01 1410 hours Dup hours
 Sampler(s): T. JORGENSEN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☒ Field Duplicate collected
☐ Grab ☒ Other (Specify): METHUS MS/MSD

Data Recorded By: T. Jorgensen Signature

PID/OVA Monitor Reading: ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY TO BLACK FINE SAND SP TRACE SILT.

SAMPLE DATA/REMARKS: Pen = 12"; REZ = 11.5"

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-441-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5-2.0 feet
Sample Date & Time: 11/8/01 1450 hours Dup hours
Sampler(s): T. Dargatzis

Data Recorded By: L. J. J. J. J. Signature

PID/OVA Monitor Reading: _____ ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY - BLACK SILT & FINE SAND
SM/MC.

SAMPLE DATA/REMARKS: PCN. = 12" REL. = 12"

[illegible]



Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-442-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

Sample Method: Auger OR ~~Pneumatic Hammer~~
Depth Sampled: 0.0-0.5 feet
Sample Date & Time: 11/9/01 0900 hours Dup hours
Sampler(s): 1 JORGAN

Data Recorded By: T. Dyer Signature

PID/OVA Monitor Reading: _____ ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) GRAVELLY, F-C SAND (SW). GRAY.
TRACE SHELL FRAGMENTS.

SAMPLE DATA/REMARKS: COBBLE & BOULDER BEACH FACE REMOVED PRIOR TO SAMPLING TO EXPOSE
FINER GRAINED SED. FOR SAMPLE.

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-442-1024

Tetra Tech, NUS Job No./PMS 4152-0510/0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5-20 feet
Sample Date & Time: 11/13/01 0830 hours Dup _____ hours
Sampler(s): DAVE SIEFREN

Data Recorded By: [Signature]
Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SHE GRAY - SHELLS mix
w/ SAND (FINE), DEBBLES, ROCK
AND TRACE OF SILT

SAMPLE DATA/REMARKS: PETRO STAR BURST FORMED ON SURFACE H₂O when H.A.

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-443-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0 - 0.5 feet
Sample Date & Time: 11/13/01 1100 hours Dup _____ hours
Sampler(s): DAVE SIEFEN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: [Signature] Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SILT - BLACK HAS

SOME SHELLS & TRACE OF FINE SAND

SAMPLE DATA/REMARKS: _____

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Page 1

S8

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-443-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5-2.0 feet
Sample Date & Time: 11/13/01 1115 hours Dup _____ hours
Sampler(s): DAVE SIEFKE

TYPE OF SAMPLE: (Check all that apply)

<input type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Data Recorded By: [Signature] Signature

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SILTY, Muck - BLACK

PID/OVA Monitor Reading: 0 ppm

SAMPLE DATA/REMARKS: HLS ODOOR

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY - BLACK POORLY GRADED FINE SAND. TRACE SILT, TRACE SMALL FORTINERES. SATURATED

PID/OVA Monitor Reading: _____ ppm

SAMPLE DATA/REMARKS: PEN. = 12" ; REZ. = 8.5" LIGHT H₂S ODOUR

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-444-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5-2.0 feet
Sample Date & Time: 11/8/01 1155 hours Dup _____ hours
Sampler(s): T. DUGAN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: T. Dugan Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SIMILAR TO OFF-SD-444-0006
INC. SMALL SHELL @ BOTTOM.

SAMPLE DATA/REMARKS: PEN. = 1.2"; REF. = 12" STRONG H₂S odor

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-445-180006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: _____ feet
Sample Date & Time: 11/13/01 1200 hours Dup _____ hours
Sampler(s): DAVE SIEFREN

Data Recorded By: [Signature]
Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SILTY BLACK. TRACE OF
FINE SAND. FEW SHELLS

SAMPLE DATA/REMARKS: H2S odor, soft material

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520Sample ID: GFF-SD-439-1824

QC Information: _____ (if applicable)

445 - 1824Sample Method: Auger OR Pneumatic HammerDepth Sampled: 1.50-2.0 feetSample Date & Time: 11 / 13 / 01 1215 hours Dup _____ hoursSampler(s): DAVE SIEFREN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) muck, BLACK SILTYSAMPLE DATA/REMARKS: - H₂S ODOR - SOFT MATERIAL

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHsMetals



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY-BLACK FINE SAND. POORLY GRADED, TRACE SILT.

PID/OVA Monitor Reading: _____ ppm

SAMPLE DATA/REMARKS: ~~1" PEN. 0.4~~ 12" PEN; 9" REC. LIGHT H₂S ODOR. ~~12~~

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-446-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 1.5-2.0 feet
 Sample Date & Time: 11/8/01 1045 hours Dup _____ hours
 Sampler(s): T. DUGAN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: T. Dugan Signature

PID/OVA Monitor Reading: _____ ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SILTY, FINE POORLY GRADED SAND. (SM)
DARK GRAY-BLACK, TRACE COARSE EXTENDED
ROUNDED GRAVEL. 1 PIECE
TRACE ORG. MATTER (LEAF FRAGMENTS)
SATURATION

SAMPLE DATA/REMARKS: PEN. = 12"; REC. = 8" LIGHT H₂S ODOR

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFFSD-460-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11/14/01 1000 hours Dup hours D406
Sampler(s): DAVE SIEFKEN

Data Recorded By: [Signature]
Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☒ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK, FINE, AND COARSE
W/ SILT, LG ROCK - 1 x 2 in
LARGE

SAMPLE DATA/REMARKS: 12' PEN; 7' REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals

DUP-06



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SQ - 460-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5 - 2.0 feet
Sample Date & Time: 11/14/01 1005 hours Dup _____ hours
Sampler(s): DAVE SIEFKEN

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Data Recorded By: [Signature]
Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK SAND, MED & FINE SAND
w/ some SILT

SAMPLE DATA/REMARKS: 12" PEN ; 12" REC

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-50-464-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0 - 0.5 feet
 Sample Date & Time: 11/14/01 1010 hours Dup _____ hours
 Sampler(s): _____

DAVE SIEFREN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

0

ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY TO BLACK MEDIUM FINE
1 MEDIUM SAND, ROOT MATERIAL
1 CLAM (CLUE)

SAMPLE DATA/REMARKS: _____

12 PEN ; 8 REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SO-464-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 1.5 - 2.0 feet
 Sample Date & Time: 6/14/01 1015 hours Dup _____ hours
 Sampler(s): _____

DAVE SIEFREN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

0

ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collect
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) CLAY
DARK, SANDY, FINE W/ TRACE
OF MED & COARSE GRAINS

SAMPLE DATA/REMARKS: 12" PEN ; 12 REC - TIGHT SOIL, HOLDS TOGETHER WELL

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



SAMPLE LOG SHEET - SOLID PHASE

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK, GRAY to BLACK SAND
MOSTLY FINE GRAINS w/ SOME MED. & COARSE
FIBROUS ROOTS, TRACE OF SILT

SAMPLE DATA/REMARKS: 12' PEN 8' REC

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD - 462 - 1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5 - 2.0 feet
Sample Date & Time: 11/14/01 1105 hours Dup _____ hours
Sampler(s): DAVE STEPHEN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SA DARK SAND. DARK GRAYto BLACK SAND, FINE TO MEDIUM GRAIN
TRACE COARSE, TRACE PEBBLES and some pebblesSAMPLE DATA/REMARKS: 12" REN ; 12" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: GFE 50 - 463 - 0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11/19/01 1300 hours Dup _____ hours
Sampler(s): DAVE SIEFREN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____ ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK FINE
SAND some SILT, Rock ~ 1/2" Diameter

SAMPLE DATA/REMARKS: 12 PEN - 3" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: ~~OFF-SD~~ OFF-SD-463-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5-2.0 feet
Sample Date & Time: 11/14/01 1305 hours Dup hours
Sampler(s): DAVE SIEFKEN

Data Recorded By: RSZ Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input type="checkbox"/>	Trip Blank *
<input checked="" type="checkbox"/>	Sediment	<input type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY - SAND MED FINE
COURSE GRAINS, PEBBLES and SHALE

SAMPLE DATA/REMARKS: 12 PRN : 12 REC

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD-464-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11/14/01 1030 hours Dup _____ hours
Sampler(s): DAVE STEPHEN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK, GRAY to BLACK FINE SAND
WITH SOME SILT - FEW ROCKS
SOFT

SAMPLE DATA/REMARKS: 10" PEW; RLC 5.5"

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD 464 - 1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 1.5 - 20 feet
 Sample Date & Time: 11/14/01 1035 hours Dup _____ hours
 Sampler(s): DAVE SIERKEN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY CLAY w/ TRACE MED
SAND, FEW ROCKS

SAMPLE DATA/REMARKS: 12" PEN ; 12" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520Sample ID: OFF SD - 465 - 0006

QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic HammerDepth Sampled: 0 - 0.5 feetSample Date & Time: 11/19/21 1230 hours Dup _____ hours

Sampler(s): _____

DAVID SIEFKE

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____ ppm

TYPE OF SAMPLE: (Check all that apply)

<input type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACKFINE SAND SOME SILTSAMPLE DATA/REMARKS: 12" PEN - 4.5" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD-465-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5-2.0 feet
Sample Date & Time: 11/14/01 1235 hours Dup _____ hours
Sampler(s): _____

DAVE SIEFKEN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil
☒ Sediment
____ Lagoon/Pond
____ Grab
____ Trip Blank*
____ Rinsate Blank*
____ Field Duplicate collected
____ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) SAND DARK GRAY SAND, F. MED.
COARSE GRAINS, FEW PEBBLES, TRACE
SILT

SAMPLE DATA/REMARKS: 12" PEN ; 12 REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF SD - 466-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0.5 feet
 Sample Date & Time: 11/14/01 1400 hours Dup _____ hours
 Sampler(s): _____

DAVID SIERKEN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

MS / MSD

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK - GRAY to BLACK Fine

4 MED GRAINED SAND w/ SHELL FRAGMENTS

SAMPLE DATA/REMARKS: 12 PEN 9 REC

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		<u>MS / MSD</u>
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD - 466-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5 - 2.0 feet
Sample Date & Time: 11/14/01 1405 hours Dup _____ hours
Sampler(s): _____

DAVID SIEKKEW

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

0

ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil
☒ Sediment
____ Lagoon/Pond
____ Grab
____ Trip Blank*
____ Rinsate Blank*
____ Field Duplicate collected
____ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY - FINE SAND

WITH SHELL FRAGMENTS

SAMPLE DATA/REMARKS: _____

12" PEN 12" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD- 467-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0 - 0.5 feet
Sample Date & Time: 11/14/01 1430 hours Dup _____ hours
Sampler(s): DAVE SIEFKE

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank *
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank *
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Data Recorded By: [Signature]
Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK, FINE SAND
FINE w/ SOME MEDIUM, TRACE OF SHELLS
SOME SILT

SAMPLE DATA/REMARKS: 12" PEN ; 7.5" REC

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs		
Metals		



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF SD - 467-1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5 - 2.0 feet
Sample Date & Time: 11/14/01 1435 hours Dup _____ hours
Sampler(s): _____

DAVID SIEFREN

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____ ppm

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK BE GRAY to BLACK
SOME SAND FINE, MOSTLY BROWN
BLACK SHALE, MAKING FLAT ROCKS
TRACE SHELLS

SAMPLE DATA/REMARKS: 12" PEN ; 12" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OFF-SD-46B-0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: _____ (If applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0-0.5 feet
 Sample Date & Time: 11/12/01 1400 hours Dup _____ hours
 Sampler(s): DAVE SIEFEN / STEVE PARKER

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK GRAY to BLACK - SILT & CLAY
ORGANIC, SOFT - H₂S ODOR
ORGANIC MUCK

SAMPLE DATA/REMARKS: 12' PEN; 8" REC

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520Sample ID: OFF - SD - 468 - 1824

QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: 0.5 - 2.0 feet
 Sample Date & Time: 11/12/01 1405 hours Dup _____ hours
 Sampler(s): DAVE SIEFREN

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: _____

ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) GRAY, DARK GRAY to BLACKSILT & CLAY - ORGANIC MUCKSAMPLE DATA/REMARKS: 12" PEN ; 8 RECH₂S ODOR

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF - SD - 469 - 0006

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 0-0.5 feet
Sample Date & Time: 11/12/01 1430 hours Dup _____ hours
Sampler(s): DAVE SIEFKEN & STEVE PARKER

Data Recorded By: _____

Signature

PID/OVA Monitor Reading: 0 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/> Soil	<input type="checkbox"/> Trip Blank*
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Rinsate Blank*
<input type="checkbox"/> Lagoon/Pond	<input type="checkbox"/> Field Duplicate collected
<input type="checkbox"/> Grab	<input type="checkbox"/> Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK - GRAY & BLACK
SILT & CLAY - (muck)

SAMPLE DATA/REMARKS: 12" PEN 8" RZC H₂S ODOR Soft

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OEP SD - 469 - 1824

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: _____ (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: 1.5 - 2.0 feet
Sample Date & Time: 4/12/01 1435 hours Dup _____ hours
Sampler(s): DAVE STEPHEN & STEVE PARKER

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☐ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): _____

Data Recorded By: [Signature]

Signature

PID/OVA Monitor Reading: 0

ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) DARK, GRAY to BLACKSILT & CLAY (much)SAMPLE DATA/REMARKS: 12" PEW 12" REC H₂S ODOR

ANALYSIS

BOTTLE LOT NO.

NOTES/SKETCH:

PAHs
Metals

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
Sample ID: OFF-SD-499-R801

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
QC Information: rinsof blank (if applicable)

Sample Method: Auger OR Pneumatic Hammer
Depth Sampled: _____ feet
Sample Date & Time: 10/30/01 1620 hours Dup — hours
Sampler(s): S. Parker

Data Recorded By: K. Lang Signature

PID/OVA Monitor Reading: 1 ppm

TYPE OF SAMPLE: (Check all that apply)

<input checked="" type="checkbox"/>	Soil	<input checked="" type="checkbox"/>	Trip Blank *
<input checked="" type="checkbox"/>	Sediment	<input checked="" type="checkbox"/>	Rinsate Blank *
<input type="checkbox"/>	Lagoon/Pond	<input type="checkbox"/>	Field Duplicate collected
<input type="checkbox"/>	Grab	<input type="checkbox"/>	Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)

SAMPLE DATA/REMARKS: rinstate blank of acetate core liner
(new)

[illegible]



TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: OLD FIRE FIGHTING TRAINING AREA (OFFTA)
 Sample ID: OPF-SD-499-R802

Tetra Tech, NUS Job No./PMS 4152 - 0510 / 0520
 QC Information: rinsate blank (if applicable)

Sample Method: Auger OR Pneumatic Hammer
 Depth Sampled: — feet
 Sample Date & Time: 10/30/01 1625 hours Dup — hours
 Sampler(s): S. Parker

TYPE OF SAMPLE: (Check all that apply)

☒ Soil ☐ Trip Blank*
☒ Sediment ☒ Rinsate Blank*
☐ Lagoon/Pond ☐ Field Duplicate collected
☐ Grab ☐ Other (Specify): —

Data Recorded By: K. Laf Signature

PID/OVA Monitor Reading: — ppm

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) —

SAMPLE DATA/REMARKS: rinsate blank of bowl from SD-439

ANALYSIS	BOTTLE LOT NO.	NOTES/SKETCH:
PAHs	NA	
Metals	NA	